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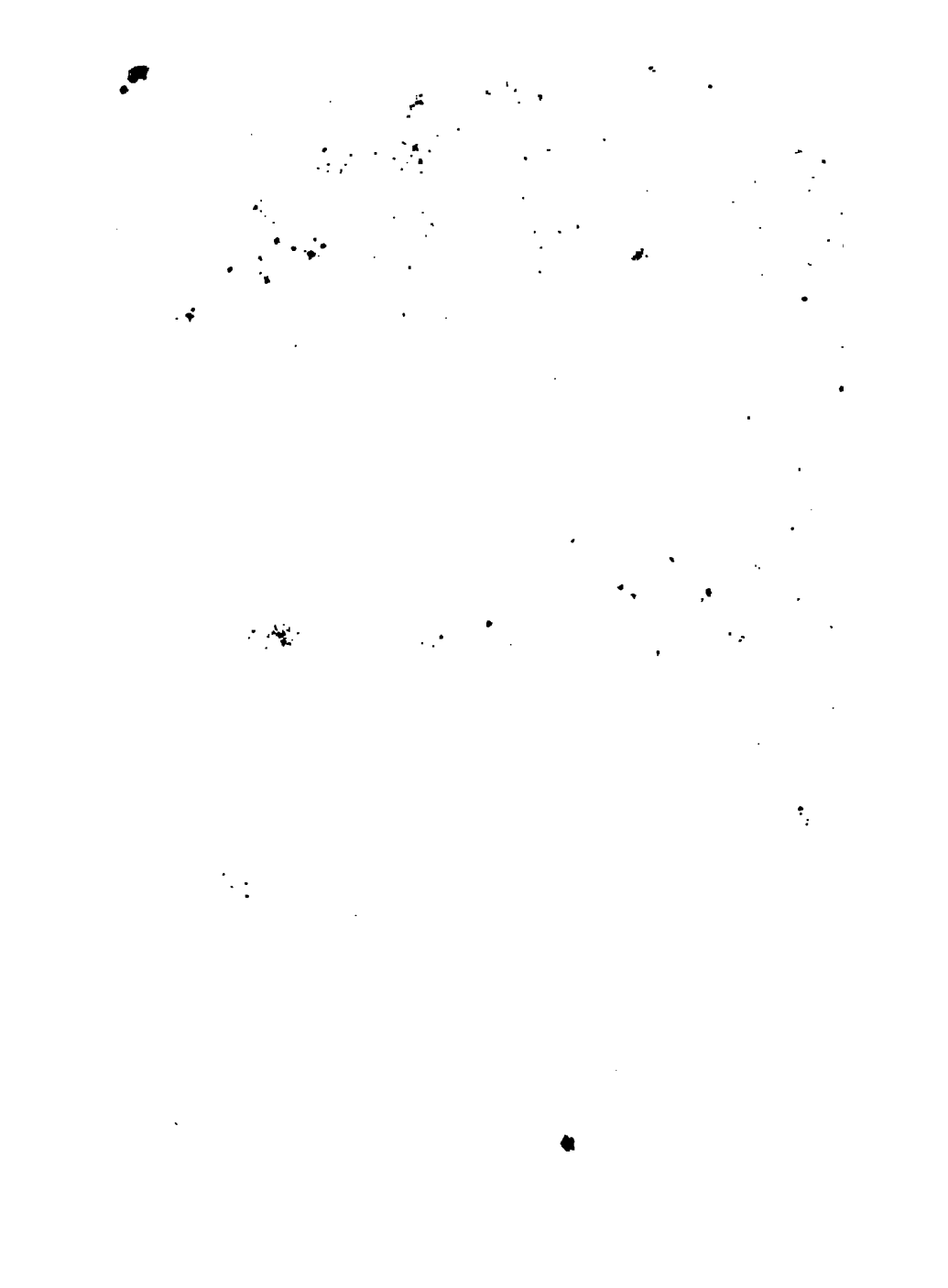
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PATENTS FOR INVENTIONS.

ABRIDGMENTS

OF

Specifications

RELATING TO

BRUSHING AND SWEEPING.

A.D. 1699-1866.

PRINTED BY ORDER OF THE COMMISSIONERS OF PATENTS.



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176. i. 11.

PREFACE.

THE Indexes to Patents are now so numerous and costly as to render their purchase inconvenient to a large number of inventors and others, to whom they have become indispensable.

To obviate this difficulty, short abstracts or abridgments of the Specifications of Patents under each head of Invention have been prepared for publication separately, and so arranged as to form at once a Chronological, Alphabetical, Subject-matter, and Reference Index to the class to which they relate. As these publications do not supersede the necessity for consulting the Specifications, the prices at which the printed copies of the latter are sold have been added.

The number of Specifications from the earliest period to the end of the year 1866, amounts to 59,222. A large proportion of the Specifications enrolled under the old law, previous to 1852, embrace several distinct inventions, and many of those filed under the new law of 1852 indicate various applications of the single invention to which the Patent is limited. Considering, therefore, the large number of inventions and applications of inventions to be separately dealt with, it cannot be doubted that several properly belonging to the group which forms the subject of this volume have been overlooked. In the progress of the whole work such omissions will, from time to time, become apparent, and be supplied in future editions.

This volume contains Abridgments of Specifications to the end of the year 1866. From that date the Abridgments will be found in chronological order in the "Chronological and Descriptive Index" (*see* List of Works at the end of this book). It is intended, however, to publish these Abridgments in classes as soon as the Abridgments of all the Specifications from the earliest period to the end of 1866 have appeared in a classified form. Until that takes place, the reader (by the aid of the Subject-matter Index for each year) can continue his examination of the Abridgments relating to the subject of his search in the Chronological and Descriptive Index.

This series includes inventions relating to brooms and brushes of all kinds, mops, and sponges for guns; also apparatus for brushing and sweeping either by rotary brushes or other means. Road sweepers are consequently included, as are also knife-cleaners, apparatus for dressing fruit, and machines for cleaning boots and shoes, plate, domestic utensils, and the like, where the process is performed by means of brushes. Knife and plate cleaners which act by means of leather pads or otherwise have been excluded. Brushes for chimney-sweeping have been admitted, but not apparatus for cleaning chimneys by other means than sweeping. Machine-brushes have only been admitted when some improvement is made in the brush itself, applicable to general purposes, or, in the case of cloth-dressing machines, when it appeared that the apparatus might be used for general purposes of brushing, or for treating the finished and completed fabric. For Abridgments of Specifications relating to machine-brushes, reference must be made to the series devoted to each special class. Cloth-dressing machines will be found in the forthcoming

PREFACE.

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series relating to "Dressing and Finishing Woven Fabrics." Materials for brush-making have, of course, been admitted, as have also machines for dragging bristles for the manufacture of brushes.

The Abridgments marked thus (**) in the following pages were prepared for another series or class, and have been transferred therefrom to this volume.

B. WOODCROFT.

November, 1872.

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INTRODUCTION.

WITH regard to the manufacture of brushes at present, there are, of course, as many methods as there are descriptions of brushes. Speaking generally, it may be said that brushes are of two kinds, those composed of a single tuft or fibre, and those of many tufts set in a "stock" or back. Of the first sort the simplest are the "pencils" or small brushes used by artists. The smaller sorts of these are set in a quill, the larger in a metal tube. The fibres used are the hair of the camel, goat, squirrel, sable, marten, badger, etc., and for the larger size, hog's bristles. In the process of manufacture a small bundle of hair is tied together, care being taken that the hairs are arranged to form a point in the centre of the brush; this is pushed to a sufficient length through the large end of the quill or tube. The quill has been moistened, and contracts as it dries, so as to hold fast the hair; or if a metal tube is used, it is slightly compressed upon the hair. In larger brushes made of a single tuft, a mass of hair is secured by binding or otherwise, and the handle driven into it through the bristles. This process has, however, numerous variations, descriptions of very many of which will be found in the succeeding Abridgments. In the second class of brushes a suitable back is prepared and bored with holes to receive the tufts of bristles. These "knots" are generally formed by tying a bundle of fibres together and dipping it in cement; after which each knot is placed in the hole prepared for it. In brushes which are sufficiently short to admit of the hair being doubled, "wire drawing" is used. A tuft of bristles is drawn through each hole by a wire passed across its middle, and the doubled end is thus forced in. This process, as well as those alluded to before, is capable of numerous modifications, the sketch here given being as brief and general as possible.

The most common material for brushes is procured from the bristles of the hog, which are imported into this country principally from Russia. Various vegetable fibres are also employed,

as well as animal hair of nearly every description. The war with Russia is said to have interrupted the supply of bristles, and to have given a considerable impulse to the introduction of various vegetable substitutes. In 1870 the value of brooms and brushes exported was 56,287*l.*, that of those imported, 26,035*l.* The value of the bristles imported in the same year was 366,767*l.*

Among vegetable fibres employed are those of the Mexican aloe. Brushes of fibre are specially suitable for lime-washing, because the alkali does not affect them as it does bristles. Vegetable fibre is also mixed with bristle for purposes of adulteration; cheap but less serviceable brushes being made of the mixed materials.

Most of the different parts of brushes are now made by machinery, and machinery has even been applied to the complete process of brush making. One of the most recent improvements connected with the subject consists of an American machine for trenching, wiring, and inserting bristles in brush backs.*

In the way of history, not much is to be gathered about our subject. That brooms for cleaning and sweeping purposes have been known since the very earliest periods and by the rudest and most uncivilised people, is certain enough. Amongst the relics belonging to the iron age, disinterred from the peat-mosses of Sleswick, were found two birch brooms,† curious manifestations of ancient tidiness. The remains amongst which these brooms were found probably belong to the second or third century, as is evidenced by Roman coins mixed with them. In classical writers, from Homer downwards, we find, as might be expected, casual references to these domestic implements. They would not be of sufficient importance to cause more than an accidental and careless notice. Thus we find (Homer, *Od.* xx., l. 149), when Euryclea is clearing away the remnants of the suitors' feast, she bids the slaves;—

ἀγρεύειδ', αἱ μὲν δῶμα κορήσατε πικρύνσασαι.‡

Later on we find similar allusions; Sophocles (*Antigone*, 409) and Euripides (*Hecuba*, 363) both use the word *σάβρω* in the sense of *sweeping*, though it might be too much to assume that a broom was necessarily to be employed. Aristophanes is rather

* Described in *Scientific American*, July 20, 1872.

† Lubbock's *Prehistoric Times*, p. 9, edit. 1872.

‡ "Come now, let some of you make haste and sweep the house."

more definite. In his *Pax* (l. 59) he makes one of his characters address a comic prayer to Zeus.

ὦ Ζεῦ, τί ποτε βουλεύει ποιεῖν;
κατάδου τὸ κόρημα· μὴ κκόρει τὴν Ἑλλάδα.*

Eupolis, col. 9, uses the same word; but there is little use or interest in multiplying such references. We may mention that Theophrastus (H. P. 6. 1. 3.) speaks of the *στοιβή* or *φέως*, a shrubby plant (*Poterium Spinosum*, *Linn.*) used to make brooms; hence *στοιβῆς πυθμήν*, Hipponax (Bergk's *Lyrici Greci*), 42. 8. It appears that the tails of animals were commonly used as substitutes for brushes, just as they are now.

In Latin authors we find similar casual references. It is stated that the best Roman brooms were made of palms, others of twigs of different sorts. Plautus (*Mencechmi*, l. 1. 1.) has the word *peniculus*, which Festus translates "a small brush for removing dust." A character named *Peniculus*, a parasite, begins a speech:—

Juventus nomen fecit Peniculo mihi
Ideo quia mensam quando edo, detergeo.†

In the same play (2. 3. 40.) the word occurs again. *Scopa* or *scopæ* also meant a broom. "*Scopas dissolvere*," "To undo a broom," i.e. to throw everything into confusion, is a proverb used by Cicero (*Or.* 71. 235.) Plautus, too, uses the word (*Stich.*, 2, 2, 23).

Munditias volo fieri; efferte huc scopas.‡

and in the same scene (ll. 27 and 51) again.

Scopula is used for a little broom (Cato, *R. R.* 26), and in some sort in contradistinction to *penicillus* in Columella (12. 18);—the author is speaking of preparations for vintage—"Deinde penicillo detergitur et ferventissima pice infusa novo alio rutabulo et scopula picatur." §

Pliny appears to be the earliest writer who speaks definitely of a brush made of bristles. He recommends as a remedy for burns

* "O Zeus, whatever dost thou mean to do? Put by the besom, don't sweep Greece clean out."

† "The boys have dubbed me *Brush*, because I sweep the table clean at all my meals."

‡ "I want the place cleared up, go fetch a broom."

§ "Then it [the wine-vat] is brushed out with a broom, and boiling pitch is poured in, and spread over it with a spatula [some smearing instrument is meant by *rutabulum*] and a brush."

(N. H. l. 28. c. 71.) "Setarum . . . e penicillis tectoriis cinis
" cum adipe tritus."*

Elsewhere (N. H. l. 33. c. 7), in speaking of colouring for a wall, he says, "Pieti siccato cera Punica cum oleo liquefacta
" candens setis inducatur."† A similar receipt is given by Vitruvius (Lib. 7. c. 9.), "Ceram Punicam, igni liquefactam,
" paulo oleo temperatam, parieti seta inducere."‡

To trace any further the history of such common articles as brooms would be practically impossible. It does not even seem possible to discover the origin of the common wire-drawn brush. Like most articles in daily use, the brush is below the dignity of history.

Turning to painters' brushes we find that, as far as they can be traced back, they seem to have been of the same construction as at present. Some Chinese artists, even now, use a bamboo with one end split up into filaments, but, according to a passage in Morrison's Chinese Dictionary,§ hair pencils were invented by the Chinese about 300 B.C. As Homer speaks of painting upon ships, we may conclude that artists' brushes of some sort were in use in Europe previous to his time, while the paintings in Egypt prove even greater antiquity. Ezekiel (B.C. 600) too (xxiii. 14.), speaks of "men pourtrayed upon the wall, the images
" of the Chaldeans pourtrayed with vermilion," etc. It is hardly needful to argue that the existence of painting proves the use of the brush. Certain descriptions of wax colours were laid on with the style (*cestrum*, γράφίς) made of metal and pointed at one end, but other colours were applied with the hair pencil (*penicillus*, ὑπογραφίς). Smith's Dictionary of Antiquities, under the article *Pictura*, refers to a work of Zahn|| in which a Figure of Painting discovered in the so-called Pantheon at Pompeii, is described. The figure holds in her left hand a palette and brushes. Pliny in his account of painters and painting (Nat. Hist. books xxxiii., xxxiv., and xxxv.) frequently speaks of the brush as a common implement. In relating the story of Pro-

* "The ash of bristles from plasterer's brushes ground up with grease."

† "Let Punic wax, dissolved in oil, be laid on hot with a brush upon the wall
" when it is dry." This Punic wax was ordinary yellow wax, purified and bleached. See Pliny, N.H. l. xxi. c. 49.

‡ "To lay on the wall with the brush a coating of Punic wax melted on the
" fire and slightly tempered with oil."

§ Dictionary of the Chinese Language. Macao. 1815. Introduction, p. ix.

|| Die schönsten ornamente und merkwürdigsten gemälde aus Pompeii
Herkulanum und Stabio. Berlin. 1828.

togenes and Apelles (N. H., l. 35, c. 36.) he says, "Arrepto peniculo, lineam ex colore duxit summæ tenuitatis per tabulam."* The word *penicillus* or *peniculus* occurs frequently in the books alluded to, and other authors (Quintilian, lib. 2; Cicero, *Ad Familiares*, 9. 22; Marcian. *Dig.* 33., 7, 17.) use it occasionally. Pliny (b. 35., c. 41.) speaks of a method of painting ships, in which the melted wax was laid on with a brush.

A few details have been preserved respecting the brushes used by mediæval artists. Mrs. Merrifield in her work on the subject† has translated some passages bearing on the subject.

In the Public Library of Brussels there is preserved a MS.‡ written in 1635 by Pierre le Brun, a painter, in which a description of various matters connected with the art of painting is given, and many technical terms explained. In the first chapter "De la Platte Peinture" the following passage occurs:—

"Les pinceaux sont fait d'un poil doux toutefois qu'il ait une résistance pour se tenir droit et faire une pointe assez ferme pour peindre, les poils d'ours [ours] y sont tres bons, moustoil, foines et autres semblables; on se sert aussi de petite bruisette fait de soye de pourceau (ou cochon). L'on a aussi des pinceaux fait de poil de poisson pour adoucir."

This is translated as follows by Mrs. Merrifield: §

"The pencils are made of a soft kind of hair, but which has sufficient resistance to keep itself straight, and to make a firm point for painting; the hairs of bears are very good, so are those of martens and similar animals. Small brushes made of hog's or pig's bristles are also used, and pencils of fishes' hair || for softening."

In two fifteenth century miniatures, reproduced by Mrs. Merrifield, the artist is represented with a brush apparently resembling those in use at present. In each case also a tray full of brushes is figured by the artist's side.

In a MS. preserved in the Library of the University of Padua ¶ entitled, "*Ricette per far ogni sorte di colore*," is a receipt for boiling hair.

"*Per fare crino bollito bellissimo*.—Si piglia le cume e zuffe, cove di bovi, cavalli, vache, vitelli, ma avverti che le cove de' cavalli non sono

* "Snatching up a brush, he drew across the board with the colour a line of the utmost fineness."

† "*Original Treatises . . . on the Arts of Painting*." London. 1849.

‡ No. 15,552. It is quoted *extenso* in Mrs. Merrifield, pp. 759 et seq.

§ *Ibid.* p. 770.

|| Probably seal's fur.

¶ *Ibid.* p. 648.

“ bone. Si pongono in acqua fresca, e si lava acciò non le resti untume
 “ ne sozzure alcune, di poi falle fillare in corda poi si pone in parollo
 “ (sic) di liscia, e si fa bollire per 6 hore.”

This is translated by Mrs. Merrifield :*

“ *To make excellent boiled hair.*—Take the manes, forelocks, and
 “ tails of oxen, horses, cows, and calves (but remember that the tails
 “ of horses are not good), place them in fresh water, and wash them
 “ so that there may not remain any grease or dirt; then string them
 “ on a cord, afterwards put them into a vessel with ley, and let them
 “ boil for 6 hours.”

This seems to show that painters of that time were obliged to make their brushes for themselves, as, indeed, would be probable enough.

In another part of the same MS. † directions are given for making a brush for “graining” by inserting hogs’ bristles into a flat back of wood.

The use of brushes for purposes of the toilet seems to be a comparatively modern invention. Combs are very ancient. They are found of ivory and bone, in barrows, British, Roman, and English. Savage nations used—and use even at the present day—fish bones for combs. Egyptian and Greek combs have been discovered made of boxwood, and we hear of ivory combs in use among the Romans. Wright ‡ tells us how the Danish invaders used to comb their hair daily, to the surprise of the more slovenly English, and elsewhere§ the same writer gives a picture from a 13th century MS. which represents a lady combing her hair. The author of the metrical history of Jean IV., Duke of Bretagne, has the line—

“ Les Francois estoient bien peignés.”||

In the comedies of the Restoration period are many references to the custom practised by beaux, of curling their perukes.

“ Combing the peruke, at a time when men of fashion wore large wigs,
 “ was even at public places an act of gallantry. The combs for this
 “ purpose were of a large size, of ivory and tortoiseshell, curiously
 “ chased and ornamented, and were carried in the pockets as constantly
 “ as the snuff-box at Court.”¶

* Ibid, p. 710.

† Ibid, p. 716.

‡ *History of Domestic Manners*. London. 1862. p. 60.

§ Ibid, p. 260.

|| “The French were carefully combed,” Quoted in Lacroix’s *Histoire de la Coiffure, etc.* Paris. 1851.

¶ Sir John Hawkins’ *History of Music*, vol. iv. p. 447, note.

Among all such notices it does not appear that any use was made of the hair-brush. Nor is it till we get down to times much more recent that we find this now universal toilet implement even mentioned. In 1770 Peter Gilchrist wrote a "Treatise on the Hair," in which he gives full directions for hair-dressing of every sort. He speaks frequently of combing it, but never alludes to brushing it. In the same year also a similar work was published by David Ritchie, but he likewise, while giving full directions about combing the hair, does not speak of brushing it. Had hair-brushes been in general use, these two writers would probably have mentioned them. That they were known is made evident by the following extract from Owen's Dictionary of Arts and Sciences, dated 1763, in which it is said that—"Beard-brushes pay a duty, on importation, of $1s. 3\frac{4}{10}d.$ the gross or twelve dozen; whereof $1s. 1\frac{1}{2}d.$ is drawn back on exporting them. Comb-brushes pay $2s. 6\frac{8}{10}d.$ for the same number; and of this $2s. 3d.$ is repaid. Head-brushes pay, $1s. 3\frac{4}{10}d.$ the dozen; rubbing-brushes $3\frac{8}{10}d.$ the dozen; weavers' brushes $11\frac{8}{10}d.$ for the same number, in all of which a proportionable drawback is allowed. However, it is to be observed, that brushes are among the number of goods prohibited to be imported." Swift, in a remarkably coarse set of verses called "The Lady's Dressing Room," published (or written) in 1730, mentions amongst other articles a brush, but one apparently only to be used for cleaning combs.

Notes and Queries (1st series, vol. xi. p. 299), gives an extract from the Annual Register of 1773, which goes to show that hair-dressing was a "pitiful and womanly" employment, "not fit for young men to follow."

Of shaving-brushes we can speak with more definiteness. On October 7, 1814, a correspondent wrote as follows to the *Gentleman's Magazine*:—

"I am old enough to remember when the operation of shaving in this Kingdom was almost exclusively performed by the barbers; what I speak of is some threescore years ago, at which time gentlemen shavers were unknown. Expedition was then a prime quality in a barber, who smeared the lather over his customers' faces with his hand; for the delicate refinement of the brush had not been introduced. The lathering of the beard being finished, the operator threw off the lather adhering to his hand by a peculiar jerk of the arm, which caused the joints of the fingers to crack, this being a more

"expeditious mode of clearing the hand than using a towel for that purpose; and the more audible the crack the higher the shaver stood in his own opinion and in that of his fraternity."

This note was in answer to one alluding to a passage in Stubbe's "Anatomie of Abuses," printed in 1583. The passage refers to the barbers of the reign of Queen Elizabeth, and is quoted as follows in the *Gentleman's Magazine* for Sept. 1814, p. 207:—

"And when they come to washing, oh how gingerly they behave themselves therein. For then shall your mouth be bossed with lather or some that riseth of the balles (for they have their sweete balles wherewith all they use to washe), your eyes closed must be anointed therewith also. *Then snap go the fingers, ful bravely, God wot,*" etc.

Hone, in his "Everyday Book," vol. 1, p. 1267, refers to these passages, and quotes from Lyly, who speaks of the "knacking of the hands" by a barber; from Green, who describes a barber "that can snap his fingers with dexterity;" and from Ben Jonson, one of whose characters, Morose in the "Silent Woman," desires a quiet barber, who "hath not the knack with his shears or his fingers."

Smith, in his *Topography of London** says:—"The entertaining and venerable Mr. Thomas Batrich, barber, of Drury Lane, informs me that before the year 1756, it was a general custom to lather with the hand; but that the French barbers, much about that time, brought in the brush."

In confirmation of this, it may be added that Randle Holme, who wrote on *Heraldry* in 1688, gives a list of barber's instruments in which a shaving-brush is not mentioned, though a clothes brush is.

J. Jenning's "Family Cyclopædia" (1822) speaks of a "stomach-brush" as "a curious instrument which excited considerable attention about the middle of the last century, but which has never been much used;" "nor can we say a great deal in its favour." No further description is given. The same authority recommends the use of the tooth-brush; "some medical men disapprove of the use of tooth-brushes, whilst others as strongly recommend them," and considers the hair-brush and nail-brush alike useful.

*Smith (J. T.) *Topography of London*. London. 1810. p. 33.

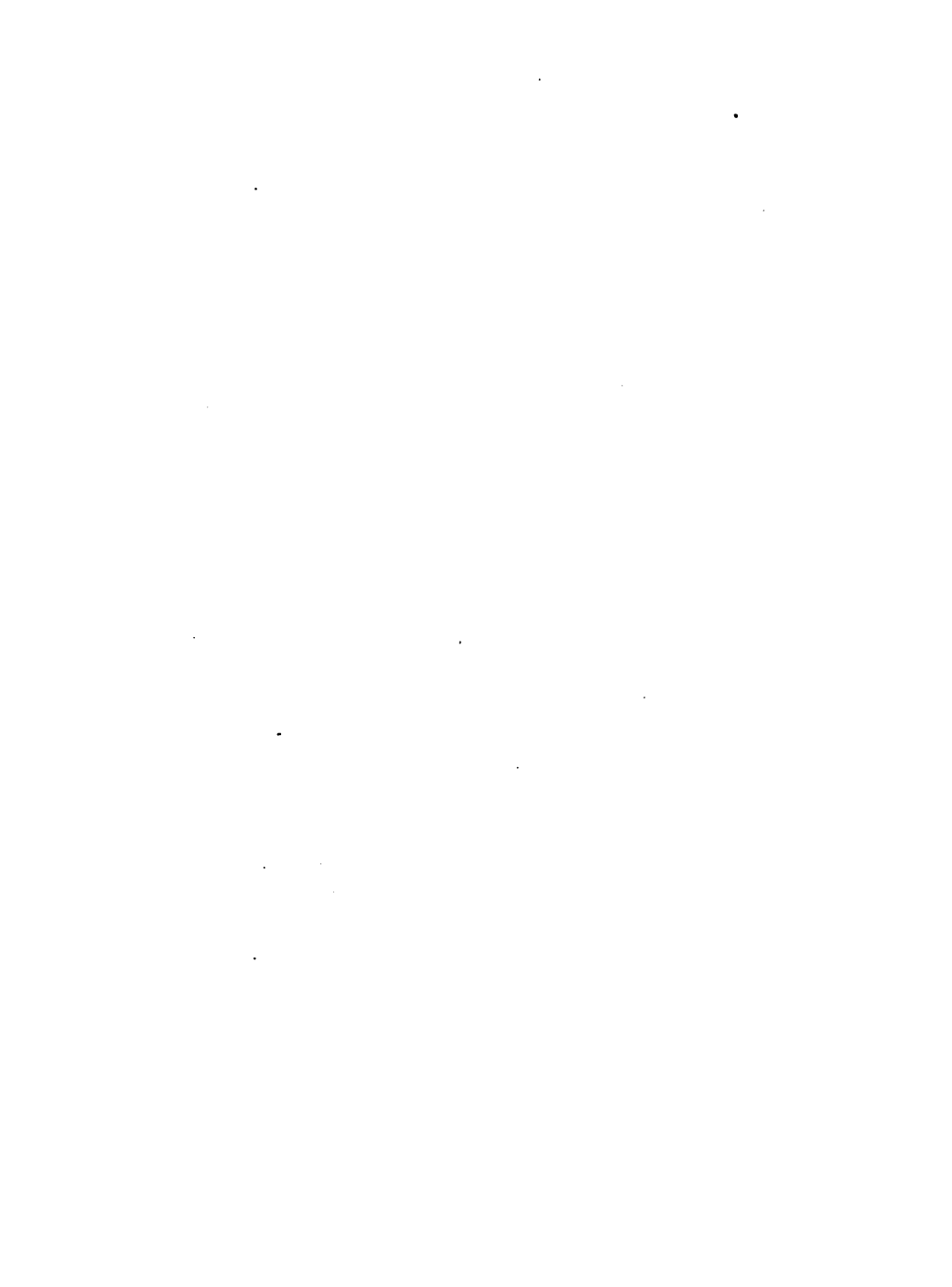
Curiously enough, in many languages the word for a brush and the matter removed by its use, are the same. In old English even the word *brush* used to signify dust or dirt. Chaucer has—

“ And ever among, the brush away she pikid
From her clothes here and there.”

The Greek *κόρημα* means both *refuse* and a *broom*. For instances of this in other languages, reference may be made to Wedgwood's *Dictionary of English Etymology*. The true derivation of the word is, however, certainly to be connected with “ bristle.”



BRUSHING AND SWEEPING.



BRUSHING AND SWEEPING.

A.D. 1699, June 20.—N^o 364.

HEMING, EDMUND.—“A new engine for sweeping the streets of London, or any city or towne, as alsoe greens and walks, within our dominions, by an invençon for loading the dirt, dust, or soyl, or any sort of casks, with great ease and quicknesse, and hath brought to perfeçon a new invençon very vsefull for all our artillery carriages, waggons, and carts, and all cõmon carts and waggons vsed in our dominions; and hath alsoe invented a new engine very vsefull for mending and repaireing the highways, throwing all the risinge ridges into the rutts.”

[No Specification enrolled. Letters Patent printed, price 4d.]

A.D. 1788, August 26.—N^o 1668.

COOK, HENRY.—“Elastic sponge for spunging great guns and other fire-arms, which is not liable to be damaged by water or vermin, and will last considerably longer than any sponge heretofore constructed or used.”

The “sponge head” is to be made of wood, conical in shape. This is to be covered with “coarse thin canvas, sewed on with thin oil’d twine.” Wool or hair is to be doubled over a length of twine, and sewed on it, leaving ends about an inch and a half in length. This twine, with the wool, etc., affixed, is then to be sewn on the “sponge.” The loose wool is then combed off, and the whole trimmed to a proper length. The “head” is then taken out, and the inside of the “sponge” smeared with a composition of “letharge, red lead, white lead,” and powdered glass, mixed with unboiled linseed oil. The “head” is then driven tightly in, and this forces the composition among the wool, etc. The “sponge” is then nailed on the “head,” and the exposed

parts of wood and stitching rubbed with the composition. For small "sponges" the nailing is not required.

[Printed, 4d. No Drawings. See Rolls Chapel Reports, 6th Report, p. 179.]

A.D. 1789, May 28.—N^o 1682.

ELIN, JOHN.—"A machinery for cleaning the inside of chimneys."

Two collapsible brushes are described, one square, the other circular. These brushes are drawn up and down the chimney by a cord passing over a pulley at the top. In the square brush four systems of lazytongs levers are jointed together to form a square. This is kept extended by springs acting against its sides. To the outside of the frame thus formed brushes are attached, so that the whole may be expanded, or closed. At each corner a square brush is fixed. From each corner proceeds a lever, which is jointed to a centre-piece in the centre of the square, and from this centre-piece the whole brush is hung. From each corner also a spring proceeds to a pulley at the opposite corner. These four strings are united into one, under the brush, and by pulling them the brush is collapsed. It is kept contracted by the following device:—On each lever is a hook. These four hooks take into a ring when the levers are closed, and this holds the brush contracted. This ring is connected by a spring to the centre-piece, so that when the brush is still further contracted, the pressure of the hooks is taken off the ring, and it is drawn up by the spring. The brush is put into the chimney in a collapsed state, drawn to the top, and there expanded.

The circular brush consists of one complete turn of a spiral, the ends of which are attached to a cylinder, in such a way that one end is fixed, and the other is capable of revolving about the cylinder. The spiral is a spring, upon which a brush made of flexible material is fixed. The spring is contracted, and twisted about the cylinder by a chain fastened to a peg in the cylinder; on pulling out this peg, the spring uncoils, and the brush is expanded.

[Printed, 6d. Drawing. See Rolls Chapel Reports, 6th Report, p. 180.]

A.D. 1796, July 4.—N^o 2124.

DAVIS, DANIEL.—"Apparatus or machinery for the purpose of
"cleansing or sweeping of chimnies, and extinguishing them
"when on fire, in a more expeditious manner than now practised,

“and which entirely prevents the necessity of sending any person up the chimney for either of the above purposes.”

The brush is carried by a rack, which is worked by a toothed wheel. The wheel and rack are mounted on a frame, and motion is given to the wheel by a handle. The brush is to be made “with stout elastic wire or sponge.”

[Printed, 6d. Drawing.]

A.D. 1803, April 11.—N^o 2697.

DAVIS, DANIEL PAULIN.—“An improved machine for and method of cleansing and sweeping chimnies.”

Two bars or rollers are fixed, one at the top, the other at the bottom of the chimney. Over them a cord passes, by which a brush “of hair, cain, willow, birch, or other proper materials” may be drawn up and down the chimney. The lower bar helps to keep the brush against the side of the chimney. To prevent the brush from getting fixed in the chimney, “some small balls of cork will be hung on various parts of of the said chain,” “to become moveable whenever it meets with the smallest interruption.” The best sort of brush “is made of balls of wood or other materials, closely connected to each other by links yielding to every direction, and adapted to receive and securely hold stiff horsehair bristles, slender twigs of willow, cane, or strips of whalebone.” By these means the brush may easily be drawn over the roller. If it is not required to carry it over the roller, a brush may be used “made of four or more moveable sides, supported by and moving upon transverse props.” These sides may be drawn together by means of lines. The “props” may also be moveable on the bar to which they are fixed.

[Printed, 4d. No Drawings. See Repertory of Arts, vol. 4 (*second series*) p. 90.]

A.D. 1803, May 10.—N^o 2702.

BELL, ELIZABETH. — “An artificial method of sweeping chimnies, and of constructing them in such a manner as to lessen the danger and inconvenience from fire and smoke.”

A frame to support a pulley is fixed at the top of the chimney. A chain fixed to the sweeper passes over this pulley, and then through a tube in the sweeper to the bottom. The sweeper

consists of a centre-piece, to which are jointed levers carrying brushes. A weight is placed in a hollow within the centre-piece, and this is attached by cords to the levers, so that it draws down these ends, and expands the brushes. Or springs may be used. Cords are attached to the outer ends of the levers, by which they may be drawn down and the apparatus closed. Above the centre-piece is a fixed brush, to sweep the top of the chimney.

Or the sweeper may be "egg-shaped," and made of a number of rods jointed at the ends, and kept apart by springs; or "a cylinder faced with brushes" or scrapers may be used.

A frame may be attached to the top of the chimney, and a similar one at the bottom, to different parts of which the chain may be attached to sweep the different sides of the chimney.

Suitable mechanism is employed for drawing the chain up and down.

The inventor says :—" I sometimes produce a rotary motion by a wheel filled with a sufficient quantity of cord, which is put upon the chain, and drawn up and down the chimney."

[Printed, 4d. No Drawings. See Repertory of Arts, vol. iv. (*second series*), p. 174; Rolls Chapel Reports, 6th Report, p. 201.]

A.D. 1803, October 31.—N° 2738.

THOMASON, EDWARD.—" An improved mode of making hearth brushes."

The handle of the brush is made telescopic, and the outer tube is sufficiently large at its lower end to slide over and cover the brush. It may be moved up and down by hand, or there may be a rack and pinion within the tube to drive out the lowest joint when the two upper joints are drawn apart.

[Printed, 6d. Drawing. See Repertory of Arts, vol. 12 (*second series*), p. 383.]

A.D. 1807, March 7.—N° 3019.

BELL, ELIZABETH.—" Improvements in an artificial method of sweeping chimnies."

Improvements upon No. 2702, A.D. 1803.

The frame at the top of the chimney is constructed of "two semicircles" of iron, "which should possess a considerable degree of adjustment by means of screws."

In the lever brush the centre piece is circular, and the ends of the levers are let into it. The levers are attached "by a knee or

"double joint," and are regulated by springs. A small circular brush is attached to the chain so that it will pass through the tube in the sweeper, and sweep the top of the chimney. The pipe also has "a flanché socket" to receive a rod.

In the elastic sweeper, described in No. 2702, the body is made square, and a "flanché socket" is attached to it. A "regulating chain" is attached, by which the brush can be contracted from below.

The frame for the chimney top may be adjustable by means of screws.

The cylinder brush is made in separate pieces hinged together. The brush may be rotated by any suitable means.

The remainder of the Specification is not connected with this series.

[Printed, 6d. No Drawings. See Repertory of Arts, vol. 12 (*second series*), p. 89; Rolls Chapel Reports, 7th Report, p. 138.]

A.D. 1808, November 3.—N^o 3177.

CRACKLES, SAMUEL.—"A method of making and manufacturing of brushes from whalebone, which have heretofore been usually made and manufactured from bristles."

The following is the description given :—

"Take the bone which comes from the mouth of the whale, and boil or steep it in water for such a length of time as the nature of the bone may require to make it soft and flexible, in which state it may be cut with a plane, knife, or other sharp instrument, engine, or machine, into thin shavings, slices, or substances, which may be split, cut, or torn by having lances fixed in the front of the plane, knife, or other sharp instrument, engine, or machine, into small pieces or substances as near resembling bristles as may be, and may be made thicker or smaller in the splitting or tearing thereof, so as to render the brushes to be manufactured therefrom more hard or soft according to the different purposes for which the same may be respectively intended. And for the more convenient boiling or steeping and working the bone in manner aforesaid, it may in the first instance be cut into lengths of about nine, twelve, or eighteen inches, when it will be found to work with greater ease and convenience than otherwise. When the bone is brought by the above process to substances resembling bristles, it must be laid in a convenient place that it may become ~~per-~~

fectly dry, or thereabouts, and then it may be used and substituted in the place and stead of bristles, and brushes may be made and manufactured therefrom and used in every other respect as those brushes which have heretofore been usually made and manufactured from bristles, only these that are to be set with pitch may be seared or singed at one end with a hot iron, to make them resemble the roots, and beat at the other end to make them resemble the flag of the bristle."

[Printed, 4d. No Drawings. See Rolls Chapel Reports, 6th Report, p. 192.]

A.D. 1810, July 3.—N° 3356.

HALL, JAMES.—"A method or process of manufacturing a material from the twigs or branches of broom, mallows, and rushes, and other shrubs or plants of the like species, to be used in the stead of flax or hemp."

The broom, after being cut, is to be steeped in water till the "flax" can be peeled off. It is mentioned that the twigs by being afterwards boiled, become white and suitable for making brooms and brushes.

[Printed, 6d. Drawing. See Repertory of Arts, vol. 19 (*second series*), p. 268; Rolls Chapel Reports, 7th Report, p. 111.]

A.D. 1810, July 18.—N° 3364.

DAY, BENJAMIN AGER.—"Improvements in the construction of certain household utensils or articles of household furniture called a toast stand (for the purpose of holding a plate before the fire), a hearth brush or dust brush, and toasting fork, and occasionally in combining or uniting the said brush and toasting fork in one utensil or article."

The toasting fork may be contained in the handle of the brush, and so arranged as to lengthen it. The tines of the fork spring, so that they may enter the brush handle.

A "toast stand" is also described.

[Printed, 6d. Drawing. See Rolls Chapel Reports, 7th Report, p. 206.]

A.D. 1811, February 28.—N° 3399.

HUME, JAMES.—"A sweeping machine or brush, or improvements on a sweeping machine or brush, or sweeping machines or brushes."

The inventor says:—"I do make a brush of a cylindrical or polygonal form with pivots, or an axis, or a perforation, thro' the axis thereof, in order that the same may be capable of revolving; and I do support the said brush in a box or receptacle of tin or other fit material closed on all sides but one, which is intended to be the bottom or lower side, and in which I make a long perforation or opening to allow the face of the brush to project to a small distance; and I do support the said box or receptacle upon small wheels or castors or sliding projections, to be applied to the surface of the floor or place to be swept, so as to allow the face of the brush to touch the said surface, but to keep the said box or receptacle from touching the same; and in the use of my said invention I do place the said box or receptacle upon the surface to be swept, and do slide the same along while I turn the brush by an handle or other fit and well-known means; and by the said process or operation apartments and places may be swept without the inconvenience of raising the dust or dirt, which is retained in the said box or receptacle in a tray or cavity, on either or each side of the perforation or opening before described. And I do further declare that the said brush may be turned by a multiplying wheel and handle attached to a staff, by which the box may be pushed forward, and also by various other well-known means."

The method preferred is to mount the machine on wheels, which as they run on the ground drive the axis of the brush by means of intermediate gearing.

[Printed, 6d. Drawing. See Rolls Chapel Reports, 8th Report, p. 206.]

A.D. 1814, February 8.—N^o 3777.

HARRIS, TIMOTHY.—"Machines for ploughing, laying on colours called grounds, flocking, and pressing, so as to produce an even face upon paper, silk, linen, woollen, leather, cotton, and various other articles."

The paper, etc. to be coloured, is passed over a roller; in its passage it is coloured by means of a brush "having eight branches or ramifications extending from its centre." This brush revolves with its lower side in a trough, in which colouring matter is placed. Another "pendant brush" is placed over the paper, so as to act upon it as it is drawn along over the roller.

and after receiving the colour. A "vertically revolving brush" is applied for the same purpose.

No other part of the Specification refers to matters connected with this series.

[Printed, 1s. 2d. Drawings. See Rolls Chapel Reports, 6th Report, p. 101.]

A.D. 1816, September 30.—N^o 4065.

METCALFE, JACOB.—"A tapered hair or head brush."

The inventor says :—

"I take any wood of the thickness of half an inch, or three-eighths of an inch, or thereabouts, and bore it with a brush bit, run in a lathe of any size, shape, or pattern. I then plane it smooth, which forms the stock of my brush. I then cut hair in lengths about one inch and a quarter long, which I mix with my hands, by shaking it together as unevenly as possible. I then take brass wire, which I double and push through the hole at the back of the stock, which forms a loop, into which I put so much of the hair, so mixed as aforesaid, as will fill the hole of the stock, and draw it into such hole, and so proceed hole by hole till I have drawn the whole stock. I then press down with a piece of iron the wire at the back of the stock, and glue on the back of the stock a thin cover of wood; when dry I proceed to complete my brush according to my designed pattern, by sawing off with a turning saw all superfluous parts of the stock, and by shaving off with a spokeshave, and scraping with a scraper the rough and uneven parts of the stock, and smooth such stock by rubbing it with glass paper."

[Printed, 4d. No Drawings. See Webster's Reports, vol. 1, p. 141; Webster's Patent Law, p. 66 (also p. 129, Case 67), and Supplement, p. 4; Carmichael's Reports on Patent Cases, vol. 1, p. 392; Parliamentary Report, 1829 (*Patent Law*), p. 208; Starkie's Reports, vol. 2, p. 249; Patentee's Manual, p. 74; Billing on Patents, p. 71.]

A.D. 1818, February 10.—N^o 4225.

BARRATT, ZACHARIAH.—"Curing, cleansing, sweeping, and ventilating chimnies."

The brush is a fixture, and remains in a cap at the top of the chimney when not in use. Rollers are fastened to the stock of the brush to enable it to pass more easily up and down the chimney. It is drawn up and down by a cord which passes over a pulley at the top, and is worked by hand or by a windlass at the bottom. Loops of wire are attached above and below for the

attachment of the chain. A loose plate is placed on the top of the brush, and this is left on the top of the chimney tube when the brush is drawn down, so as to close the chimney.

[Printed, *4d.* Drawing. See Repertory of Arts, vol. 34 (*second series*), p. 201; Rolls Chapel Reports, 8th Report, p. 122.]

A.D. 1822, December 26.—N^o 4744.

RICHARDS, GEORGE.—“Improvements in grates, stoves, furnaces, and other inventions for the consumption of fuel, and in the flues connected with them, whereby they are rendered more safe, and the smoke prevented from returning into the rooms in which they are placed; and also for an improved apparatus for cleaning the same.”

The greater part of the Specification refers to the above-mentioned matters; for sweeping the chimney a chain is hung over a pulley from the top, and by it a scraper or a “square or cylindrical oblong hair or whalebone or any other flexible material brush” may be drawn up and down. A hole is bored in the block for the loose end of the chain to pass through. The chain is introduced into the chimney by means of a “whalebone needle” made in joints, which is passed down the flue from above, and carries a thin line.

[Printed, *4d.* No Drawings. See London Journal (*Newton's*), vol. 6, p. 191.]

A.D. 1825, March 29.—N^o 5141.

SHEPPARD, EDWARD, and FLINT, ALFRED.—“Improvements in machinery for raising the wool or pile or woollen or other cloths by means of an improved application of the teazle or other points, and part of which improvements are also applicable to brushing, smoothing, and dressing such cloths.”

A rotatory brush is used for clearing the cylinders set with teazles employed in the process described, and the inventors also claim a cylindrical brush applicable for various purposes, which they thus describe:—

“We take a convenient number of strips of wood or bars of metal or other suitable material of a sufficient length and size, in which hair or other points are inserted either by perforation or being confined between two slips or plates by a convenient number of restraining screws or by other means; these strips

“ or bars are then placed in a circular ring or plate at each of
 “ their respective ends, which are fastened on a spindle for the
 “ purpose of giving a rotatory motion. At each end of these
 “ strips or bars is placed a small pivot or bearing, which fixes
 “ them in the plate or rings, but allows of their moving when
 “ required. At one end of these strips or bars is placed a pinion
 “ or segment of a circle, furnished with teeth in which a toothed
 “ wheel works for the purpose of giving the requisite degree of
 “ movement. This wheel is at liberty to move loose on the face
 “ of one of the plates on a round part formed on the shaft or
 “ otherwise, or the same may be moved by a series of levers. The
 “ wheel is moved by another small pinion on which is attached
 “ an index and handle, and thereby any degree of obliquity or
 “ other position is given to the points with the greatest nicety,
 “ that is to say, by making the hair or points form an obtuse
 “ angle with the radial line, either in a direction with its motion
 “ or against it, a hard or soft brush is formed, or a medium
 “ effect produced by the hair or points forming a line with the
 “ radius.”

[Printed, 6d. No Drawings. See London Journal (*Newton's*), vol. 13, p. 88.]

A.D. 1825, November 1.—N^o 5275. (* *)

RANYARD, WILLIAM.—A “circumvolution brush and hander.”

This invention relates to apparatus for sweeping streets and other places, and consists of a number of brushes mounted upon two rims or wheels, placed upon an axis at a suitable distance asunder, or upon a cylinder, and carried by a frame which may be placed upon a vehicle or “barrow,” in such manner that on the barrow being drawn forward, a spur wheel connected to one of the wheels thereof gives motion to the brushes through the medium of a second spur wheel on the axes of the latter. The brushes being thus made to rotate sweep the material to be removed up a curved instrument called a “hander,” over the top of which it falls into a box placed at the back of the machine. The hander is connected by means of springs to a bar passing across the machine, and may, as well as the brushes, be raised up so as to be out of action when desired. The whole machine is covered in with wood, cloth, or other material.

[Printed, 6d. Drawing. See London Journal (*Newton's*), vol. 14, p. 26.]

A.D. 1827, March 22.—N° 5476.

WOODMAN, JAMES.—“An improvement on shaving and other brushes, which improvement is also applicable to other purposes.”

The handle of a shaving brush is made hollow and filled with soap. There is a hole in the socket by which the soap passes to the brush. In the handle is a piston worked by a screw which presses out the soap. A wire passes through the piston and guides it. The brush is covered by a cap screwed on it and perforated to admit air. A “nail brush, hand, paste, and bath brushes” are made on the same principle.

The back of a scrubbing brush is made hollow to contain soap, and there are holes to allow the soap to pass to the hairs. The lid has holes to admit water.

A paint brush is fixed to a hollow tube “at the mouths of which” is placed “a valve or other contrivance for the purpose of allowing the paint to pass through or to prevent it.” “An extract brush” or “oil and blacking brushes” are made in a similar way.

[Printed 4d. No Drawings. See London Journal (*Newton's*), vol. 1 (*second series*), p. 357; Register of Arts and Sciences, vol. 3 (*new series*), p. 165.]

A.D. 1827, April 28.—N° 5493.

LOCKYER, WILLIAM.—“An improvement in the manufacture of brushes of certain descriptions, and in the manufacture of a material or materials and the application thereof to the manufacturing of brushes and other purposes.”

The inventor thus describes his invention:—

“I take a piece of elm or other wood and reduce it to about the thickness of one and a quarter inch and to ten inches wide, or thereabouts, according to the work to which it is to be applied, and the length of the handle may be varied to suit the taste of the manufacturer; I then bore” “the holes about half an inch deep, and about one-eighth part of an inch diameter. I chiefly use Glascott's bits for this purpose. Having bored the holes I take bristles or other suitable materials and confine by tying or otherwise fastening them, previously having dipped them into the material herein-after described, to unite the bristles or other materials into knots; these knots I dip a second time into the material, herein-

“ after described, and pass them up the holes previously bored
 “ to receive them, the cement causing them to be permanently
 “ fixed in the holes; I have found tyeing the bristles or other
 “ materials to suit my purpose best. Round the rim of the
 “ brush thus formed I nail a slip of zinc of from three-quarters
 “ of an inch wide, placing it so that about one half the width of
 “ the zinc shall rest on the wood, and the remaining half, or
 “ thereabouts, on the bristles or other materials. When the
 “ zinc is so nailed on, I press it gently upwards towards the
 “ bristles or other materials; this causes the brush to work very
 “ clean and prevents its splashing; they will be found to be
 “ more durable and superior brushes than those at present used
 “ by plasterers. Other materials may be used to go round the
 “ rim of the brushes, such as copper, tin, brass, iron, or even
 “ leather, but I have found zinc to answer best. The material
 “ or materials consist of a mixture of about seven-eighths parts
 “ of pitch and one part eighth of shellac, to be melted over a slow
 “ fire and well mixed, when it will be in a proper state for being
 “ applied to fastening of the bristles or other materials into the
 “ handle or stock of the brush. Other proportions may be used,
 “ but I have found this to suit the purpose, and other materials
 “ may be mixed with the pitch and shellac to produce a cement,
 “ but I have found the above described to suit my purpose.”

[Printed, 6d. Drawing. See London Journal (*Newton's*), vol. 1 (*second series*), p. 98.]

1827, December 4.—N° 5579.

ROBINSON, JOSEPH.—“ An improvement in the manufacture
 “ of brushes of certain descriptions, and in the manufacture of a
 “ material or materials, and the application thereof to the manu-
 “ facture of brushes and other purposes.”

A bundle of bristles is drawn through a ring, or oval, or oblong, so that the ring is almost at the end of the bundle. This end is dipped into cement, so that the bristles are fixed in the ring. Additional bristles are then bound round the outside, and the ends of the whole dipped into cement and fixed in a ferrule. The handle is then cemented into the ferrule.

The cement is made by melting $\frac{2}{3}$ of rosin over a slow fire, adding $\frac{1}{3}$ of plaster of Paris, and then $\frac{1}{3}$ of shellac.

[Printed, 6d. Drawing. See London Journal (*Newton's*), vol. 2 (*second series*), p. 11; *Mechanics' Magazine*, vol. 10, p. 191.]

A.D. 1828, December 10.—N^o 5728. (* *)

BOASE, JOHN, and SMITH, THOMAS.—“Certain improvements on machines or machinery for scraping, sweeping, cleaning, and watering streets, roads, and other ways, which machines or machinery may be applied to other purposes.”

This invention consists of “a machine formed by an oblong frame placed on two or more wheels, which wheels, when put into motion, give a rotatory action to the brooms by means of a bevelled cog wheel fixed to the main axle, working another similar wheel on the axle of the brooms, and as the circle of brooms by this arrangement revolves in an oblique direction to the frame of the machine, and to the line in which it is to be made to move, the soil and other substances are gradually removed from the centre of the streets and roads (where the machine commences its operations) to the sides. A jointed or flexible scraper is placed in front of the brooms, in nearly a parallel direction with them, to remove the principal part of the mud and dirt, thereby giving to the brooms a greater freedom of action. A curved scraper is fixed to the hinder part of the frame for collecting the scrapings and sweeping into heaps ready for removal. A shield on the right side, and a covering over the frame, are used for the purpose of confining the sweepings to the space occupied by the machine, to prevent any annoyance to people passing it while in operation. The machine commences its work in nearly the middle of streets and roads, removing the soil and other substances to its right side. After going a convenient distance it returns, displacing another portion in a contrary direction to that first scraped and swept. This is repeated until the whole of the mud and dirt is removed to the sides of the streets and roads, where the curved scraper collects it into heaps. A tank for watering streets and roads may likewise be placed on some convenient part of the framing, to make it a complete road machine.”

The details of the machine may be variously modified, in some cases the brooms only, and in other cases the scrapers only, being used.

[Printed, &c. Drawing. See London Journal (*Newton's*), vol. 9 (*second series*), p. 67.]

A.D. 1830, October 20.—N^o 6019.

MASON, TIMOTHY.—"An improvement in the manufacture of "painting brushes, and other brushes applicable to various "purposes."

The invention relates to a method of fixing the hair to the handle. Grooves, circular, rectilinear, or of other shapes, are cut in the handle. They are wider at bottom than at top, or have "notched or threaded sides." The grooves may also be formed in metal, and fixed to the handle. The hair is tied up in knots, dipped in cement, and placed in the grooves, where the knots are wedged tightly in by means of a blunt tool (of which a figure is given), and flattened out so as to hold in the groove.

[Printed, &c. Drawing. See London Journal (*Newton's*), vol. 3 (*con-joined series*), p. 199; Register of Arts and Sciences, vol. 6 (*new series*), p. 81.]

A.D. 1836, February 10.—N^o 6999. (* *)

MABERLEY, FREDERICK HERBERT.—"Improved machinery "for raking, scraping, and sweeping roads or streets."

According to one modification of this invention two pieces of timber are attached to an axle, furnished with wheels, these timbers "forming a triangle" with the axle, to the lower part of which is connected a beam carrying scrapers or rakes. This beam is adjustable in height, being sustained by small wheels, and raised or lowered by screws, hinged or jointed pieces projecting from it, and carrying the scrapers or rakes. When brooms are to be used they are attached to the scrapers. The latter "are to be set, the "ends of them one behind another, so that the mud or dirt will "slip off from the first to the second, and so on."

In another arrangement a square frame is mounted on wheels, its height being adjustable by screws, and this frame carries three scrapers, rakes, or brooms, which have "necks" projecting upwards through holes in the frame, and held in any desirable angular position by chains or "irons" passing from near the ends of the scrapers, rakes, or brooms to the sides of the frame, and to a central beam carried thereby.

In another arrangement a suitable frame mounted on wheels carries a large roller, furnished on its circumference with scrapers, brooms, and rakes, this roller being caused to revolve rapidly as

the machine is drawn along by a large cog wheel connected to one of the side wheels of the machine, operating upon a smaller cog wheel on the axis of the roller. Behind this roller is mounted a "shield," having brooms at its lower edge, and projections from this shield, also carrying brooms, extend along the sides of the machine, another shield covering the roller. By the rotation of the latter, the mud, etc., from the surface of a street or way may be thrown into a cart or otherwise, or it may be used merely for raking or sweeping. In the latter case the roller is placed at a different angle with the line of road or street from that in which it works when driving mud, etc., into a cart. A "mud or dirt cart" is described as applicable for use along with this machine, having a sloping board at the hinder part, up which the material passes, the main body of the cart being "below the wheels." The wheel on the axis of the roller may be placed out of gear with that which drives it, when the roller is not required to rotate; and the shield behind the machine may be raised or lowered by the use of a screw.

[Printed, 1s. Drawing.]

A.D. 1838, January 20.—N^o 7546.

WARD, FREDERICK OLDFIELD.—"Improvements in clothes
" and other brushes."

The object of this invention is to enable a brush to be used as either hard or soft. A perforated plate is so adapted to the back of the brush as to be capable of sliding within limits over the tufts of bristles, and thereby lengthen or shorten them as required. The plate is attached to the back by springs, and there is a wire prop, which may be raised to keep it in position. Or it may be attached by screws. The plate may be hinged at one end to the back, so that a brush may be made hard at one end and soft at the other. In the process of manufacture the plate and the back-board are bored together, and the holes in the former enlarged. The plate and back are then attached, and the bristles fixed in the usual manner.

[Printed, 10d. Drawing.]

A.D. 1838, August 21.—N^o 7777.

STOCKER, SAMUEL.—"Improvements in chimneys for dwelling
" houses, and apparatus for scraping, sweeping, or cleaning
" chimneys."

The brush used "is composed of a series of elastic brushes " similar to those used for cleaning bottles." The drawing represents a brush formed by joining several of these brushes at their ends, their middle being curved outward so as to produce an ovoid shape. This brush is to be drawn up and down by a chain over a pulley fixed at the top of the chimney.

A method of cleaning chimneys with a chain alone is described.

[Printed, 8d. Drawings. See Repertory of Arts, vol. 11 (*new series*), p. 293; London Journal (*Newton's*), vol. 15 (*conjoined series*), p. 232.]

A.D. 1839, June 11.—N° 8099.

POOLE, MOSES.—(*A communication.*)—"Improvements in printing calicoes and other fabrics."

A printing machine is described. In it an "endless moving brush, which works upon a chain" is placed in "front of the cylinder which supplies the colors to the engraved cylinder; the object of this brush is, by passing to and fro across the cylinder, to remove the inequalities or rays left on the surface" by the action of the ordinary brush; it is connected to the sides of the machine by wheel-work, and put in motion by the turning of the machine."

[Printed, 1s. Drawing. See Inventors' Advocate, vol. 1, p. 291.]

A.D. 1840, April 15.—N° 8475.

WHITWORTH, JOSEPH.—"Improvements in machinery or apparatus for cleaning roads or ways, and which machinery is "also applicable to other purposes."

In one modification a rotary brush is mounted on an arm projecting from behind a cart. It receives motion from a pulley on the axle of the cart. It sweeps the dirt, etc. up a short curved surface on to a ledge at the bottom of an inclined plane. A scraper mounted on an arm receives a to-and-fro motion from a crank on the cart axle, and draws the dirt up the inclined plane into the cart.

Or an endless band brush may be used, which passes over two rollers, or works along an inclined plane so as to sweep the dirt along it and into the cart.

Or a rotary brush and an endless band brush may be made to revolve in different directions and touching each other, so that the dirt is swept on to the top of the band brush and by it carried

into the cart. "Doctors," made of bars of wood, are placed in suitable positions to clean the brushes, and make them discharge the dirt into the cart.

The endless band brush is composed of a series of brushes fixed on chains or on an elastic cloth.

[Printed, 1s. Drawing. See London Journal (*Newton's*), vol. 18 (*conjoined series*), p. 324; Practical Mechanics' Journal, vol. 1, p. 86; Inventor's Advocate, vol. 3, p. 261.]

A.D. 1841, January 8.—N° 8778.

THOMPSON, WILLIAM.—"Improvements in the construction and mounting of various kinds of brushes and brooms."

The invention is applicable to all brooms "which have handles placed obliquely in the blocks." Instead of fixing the handle in the head, it is fixed to an "intermediate" block, and this block is fastened to the head by a screw which passes through the head and has a nut on it below the head. The direction of the handle may thus be changed. The "intermediate" piece has studs which enter holes in the head to prevent its twisting round. The handles of brooms may be lengthened by being made telescopic with a sliding tube.

[Printed, 8d. Drawing. See Mechanics' Magazine, vol. 35, p. 77; Inventors' Advocate, vol. 5, p. 35.]

A.D. 1841, February 3.—N° 8830.

HANCOCK, WILLIAM, the younger.—"An improved description of fabric suitable for making friction gloves, horse brushes, and other articles."

The fabric has "as a pile, horsehair, or horsehair in combination with other substances." It is woven in a loom similar to an ordinary velvet loom, but differing from it "in having the ground bar and ground or chain roller of the ordinary mat loom instead of only the ground roller of the ordinary velvet loom, and also in having the breast bar and knee roller of the ordinary mat loom instead of the breast roller of the ordinary velvet loom." The object of these alterations is to keep the "ground" tightly stretched. "For the ground or warp," cotton yarn or other suitable material is employed, "for the pole, spun horsehair, either alone or in combination with spun wool or cotton." Other materials may also be employed for the "pole."

play to the brushes. A solid wire brush may be used for putting out fires.

[Printed, 1s. 8d. Drawings. See Record of Patent Inventions, vol. 1, p. 114.]

A.D. 1842, March 21.—N° 9301. (* *)

HANCOCK, WILLIAM, junior.—“Improvements in combs and brushes.” The combs intended are currycombs, and the brushes are of two sorts, according as they are used for “dry brushing” or painting, etc. The improvement in currycombs consists in making the backs flexible; this is effected by besmearing the back of a suitably shaped piece of wire card with two or three coats of dissolved caoutchouc or other strong flexible cement, and laying thereon, while it is in a sticky state, a piece of leather, felt, or thin veneer, the under side of which has been previously coated with a similar solution. When the junction of the parts is complete, pins are inserted round the edges, or the edges are sewed together with wire or thread. The brushes chiefly employed in dry brushing are made with flexible backs, like those of the currycombs. If the brush be of a circular form, the bristles or hairs are fixed in a flexible back which is attached to a solid back. To give a springiness to hair and other brushes, a plate of metal, or whalebone, or horn, is inserted between the parts of the back; or the top piece is made diminishing gradually in thickness from the handle. In a wheel brush or cylindrical brush, the solid disc or cylinder has a groove cut round it for the reception of the flexible back. Expanding brushes have attached to the under side of the back sheet caoutchouc or prepared cotton, in such a manner as to form an air-tight bag; air is introduced through a screw plug in the handle. Bath brushes, etc., are protected from being loosened by the water by cementing to the under side of the flexible back, before drawing the bristles, a piece of india-rubber cloth. By fastening a straight back at the ends only to the ends of a curved solid back, the yielding, when the face of the brush is pressed against anything, takes place upwards. In brushes for painting, varnishing, etc., the knot of bristles is placed in a round metal socket. A tapering metal ferrule is passed down the middle and through an orifice in the socket; the bristles will be thus so firmly compressed as not to require other fastenings; in large brushes, however, the ends also should be embedded in pitch or other cement. A taper handle fits into the ferrule. In plastering

brushes, the frame into which the ends are inserted, consists of two plates of tin joined at the ends and strengthened by cross-pieces; holes are punched in the sides, through which the binding wires or strings are passed.

[Printed, 6d. Drawing. See Repertory of Arts, vol. 1 (*enlarged series*), p. 250; London Journal (*Newton's*), vol. 23 (*conjoined series*), p. 22; and vol. 23 (*conjoined series*), p. 382; Mechanics' Magazine, vol. 37, p. 350; Record of Patent Inventions, vol. 1, p. 156.]

A.D. 1842, May 9.—N° 9343.

HAWE, GEORGE.—“Improvements in machinery or apparatus “ for sweeping and cleansing chimneys and flues.” Two small windlasses are fixed above the grate. A chain carrying a brush passes from one windlass over a pulley at the top of the chimney, and to the other windlass. By this means the brush may be drawn up and down. At all the corners of the chimney bars are fixed, over which the chain passes. Small blocks of glass are fixed to the chain at two points, in such a way that they separate two contiguous links, and prevent their touching. These act as non-conductors, and prevents the passage of the electric fluid.

[Printed, 10d. Drawing. See Mechanics' Magazine, vol. 37, p. 604; Record of Patent Inventions, vol. 1, p. 268.]

A.D. 1842, July 23.—N° 9426.

DE VARROC, EUGENE.—“Apparatus to be applied to chimneys “ to prevent their taking fire, and for rendering sweeping of “ chimneys unnecessary.”

The apparatus consists of plates or other contrivances of wire cloth for catching the soot. They are fixed near the bottom of the chimney. For sweeping them a brush of such size as to extend along the side of this plate, and double, so as to sweep two plates at once—one above, and one below, is used. It is fixed in the chimney, and is worked by handles which pass through to the outside of the chimney.

[Printed, 1s. Drawings. See Repertory of Arts, vol. 1 (*enlarged series*), p. 201; Record of Patent Inventions, vol. 1, p. 489; Engineers' and Architects' Journal, vol. 6, p. 143.]

A.D. 1842, August 2.—N° 9433. (* *)

WHITWORTH, JOSEPH. — “Improvements in machinery or “ apparatus for cleansing roads, and which machinery is also “ applicable to other similar purposes.”

Improvements on No. 8475. They consist—

Firstly, in “counterbalancing a certain portion of the weight of

“ the apparatus (composed of brooms or scrapers, and an incline or carrier plate), so as to relieve and regulate the pressure of the said brooms or scrapers on the ground,” which is effected by the employment of a weight in connection with certain chains and other mechanism; and also in a mode of raising the brooms and scrapers off the ground by the employment of a worm and winch, which may be brought into action upon a portion of the mechanism mentioned above, so as to effect such raising.

Secondly, in a mode of constructing the cart which sustains the brooms or scrapers and carrier plate, so as to admit of the said brooms or scrapers and carrier plate working near the side of a road or curbstone.

Thirdly, in a mode of forming the cart “ of two parts, so that the lower may be conveniently separated from the upper.”

Fourthly, in a mode of “ forming the brooms or scrapers into endless chains by means of open and closed links.”

Fifthly, in “ so combining rotating brooms with an incline or carrier plate, that the incline or carrier plate and the framing which carries the brooms may be adjusted as the brooms wear away.”

Sixthly, in substituting in the apparatus described by reference to Figure 8 of the Drawings annexed to the Specification of the former Patent, mentioned above, vessels formed of wood or other suitable material in place of brooms. Also, in employing, instead of a single scraper, in the machine represented at Figure 5 in those Drawings, an apparatus consisting of scrapers or scoops attached to endless chains. The patentee also mentions that, by making the circular broom larger in diameter, and reducing the depth of the cart, the use of any intermediate scrapers may be dispensed with; and that the carrier plate may be suspended from the arms carrying the axis of the circular broom instead of being attached to the cart. The circular broom may also be formed of “ separate stocks,” so arranged as to admit of easy adjustment with reference to the carrier plate.

[Printed, 1s. 2d. Drawings. See London Journal (*Newton's*), vol. 22 (*continued series*), p. 257; *Mechanics' Magazine*, vol. 33, p. 21; and vol. 64, p. 610; *Artizan*, vol. 1, p. 95; and *Engineers' and Architects' Journal*, vol. 6, p. 144.]

A.D. 1842, September 8.—N° 9461.

INSOLE, JAMES. — “ Improvements in the manufacture of brushes.”

Brushes are covered with leather or waterproof material. The stock is covered with the leather attached by cement of caoutchouc. The holes are then bored, and the bristles attached. The back is then covered in the same way, and the edges of the leather sewn.

A brush for cleaning horses is figured; it is in the form of an "egg-shaped oval." The small end is convenient for reaching hollow parts in the horse's body.

A "straight taper water brush" is shown, smaller at one end than the other, for cleaning out the hollows of the feet.

A "spoke or wheel brush" is shown, which has its back narrow at one end, and broad at the other.

[Printed, 6d. Drawing. See London Journal (*Newton's*), vol. 26 (*conjoined series*), p. 232.]

A.D. 1842, December 3.—N° 9531.

COBBOLD, EDWARD. — "Improvements in instruments for writing or marking, part or parts of which improvements are applicable to brushes for water-colour drawing."

Two ovoid or conical receptacles are connected by a hollow handle. One is grooved or fluted on its surface, the other is plain. Into the end of this fluted vessel the brush is fixed. The apparatus may be charged with liquid through several holes fitted with screws or other stoppers in the two hollow vessels. The stopper may be made with a lever action, like that of the keys of a flute.

[Printed, 8d. Drawing.]

A.D. 1842, December 21.—N° 9561.

RIGBY, EDWARD ROBERT, and RIGBY, CHARLES JOHN. — (*A communication.*) — "Improvements in the manufacture of certain articles in which bristles have been or are now used."

A substitute for bristles is made from the shafts of quills. The quill is split along its length, and the soft interior matter cleared away by boiling and scraping. The parts are then cut into fibres by a machine. This machine consists of two parallel cylinders having cutting edges around them. These cutting edges are square, and alternate in the two cylinders. They touch, so that any material placed between them is divided. They are connected by toothed wheels, so as to revolve together. They are actuated in any convenient manner. Combs are arranged to clear out the

grooves in the cylinders. Fibres thus made may be used for brushes, instead of or in combination with bristles.

[Printed, 10d. Drawing. See London Journal (*Newton's*), vol. 23 (*conjoined series*), p. 275.]

A.D. 1843, January 26.—N° 9611.

BAYLY, GEORGE PHILLIPS.—“Improvements in brushes.” The invention applies principally to tooth and nail brushes. Holes are drilled in the usual way, and the back of the brush is hollowed out, or parallel grooves are cut over and along the rows of holes. The bristles are fixed in with wire as usual, and the grooves or hollow are filled up with liquid cement. A solid back is then fixed on, or if grooves are used, the cement may be left uncovered. The cement may be made of “shell lac and rosin.”

Nail brushes may be made with metal stocks, preferably of German silver or “albata.”

[Printed, 6d. Drawing. See London Journal (*Newton's*), vol. 23 (*conjoined series*), p. 113.]

A.D. 1843, April 20.—N° 9707.

PROSSER, RICHARD, and CUTLER, JOB.—“Improvements in the machinery to be used in manufacturing of pipes and bars, and in the application of such pipes or bars to various purposes.”

The only part of the Specification which refers to the present subject is in the following words:—“One of our improvements in the manufacturing of pipes or bars consists in the use of a brush composed of iron or steel wire, or other proper fibrous material, which we employ for the purpose of brushing off or removing any superfluous or foreign substance from the surface of the pipe both before and after the welding process. For these purposes we employ the fibrous brushes, first to remove any redundant matter sticking to the tube before the welding is performed; and, secondly, we form the fibrous material into circular brushes, and pass the pipe or bar at a red heat between the external surfaces of two or more brushes while the circumferences of the brushes are in rapid motion, and by passing and repassing the pipe or bar at a red heat between the revolving brushes, the external surface of the tube is cleared from scale or oxide; or the brushes may be stationary, and the pipe passed over the surface of the fibrous material forming

" the brush, which we prefer should be composed of steel wire,
" like the brushes in ordinary use, called scratch brushes; our
" object being to remove any foreign substance from the surface
" of the pipe or bar while it is at a welding heat and before it is
" welded; and, secondly, to clean the surface of the pipe or bar
" from scale or oxide afterwards."

[Printed, 3s. 2d. Drawings. See Transactions of the Society of Arts, vol. 54, p. 100.]

A.D. 1843, July 13.—N° 9836.

GEARY, STEPHEN.—"Improvements in machinery or apparatus
" for clearing, cleaning, watering, or wholly or partially covering
" with sand or other materials, roads, streets, or ways; and which
" machinery is also applicable to other similar purposes."

A machine for sweeping is described, in which motion is given by a train of cog-wheels from the axle of a pair of supporting wheels to a hollow axle which revolves about the other axle. On the hollow axle are mounted two wheels which carry brushes on arms connecting their peripheries. A hollow revolving drum is thus formed carrying brushes on its exterior. These arms may be secured so as to be removed when new brushes are to be substituted. The front part of the drum is fitted with a casing, against which the brushes act. A receptacle is carried within the drum. The machine acts by sweeping up dirt, etc. against the inner surface of the casing until it is brought to the top, when it falls into the receptacle. In a modification, the receptacle may be carried before the sweeper, and receive the sweepings through an opening in the casing.

[Printed, 10d. Drawing. See Engineers' and Architects' Journal, vol. 7, p. 38.]

A.D. 1843, July 24.—N° 9851.

DAVIDGE, JOSEPH DANIEL.—"Improvements in manufac-
" turing certain materials as substitutes for whalebone, applicable
" to various useful purposes, and in the machinery for effecting
" the same."

Strips of metal are twisted into tubes to serve, amongst other purposes, as "flexible stems for brushes or apparatus for sweeping flues or chimnies." The metal may be twisted in any manner, but the inventor prefers to use a machine described. A mandril

receives motion from a handle which also works a screw-shaft parallel to the mandril. A sliding piece is carried by the screw-shaft and has an opening through which the mandril passes. Across the opening is a slit, through which the strip of metal passes. When the machine is put in motion, the strip is wound on the mandril, and as it is wound the sliding piece carries forward the strip, so that it is formed into a helix.

[Printed, 6d. Drawing. See London Journal (*Newton's*), vol. 24 (*continued series*), p. 257.]

A.D. 1843, November 2.—N° 9921.

EVANS, DAVID. — "Improvements in sweeping and cleaning
" chimnies and flues."

For sweeping the chimney, a wire rope is kept suspended therein over a pulley at the top, by means of which a hempen or other rope may be introduced. To this latter rope a circular brush is attached, having a hole in the middle through which the other end of the rope passes. The brush is represented as made with the bristles longest in the middle, and lessening towards the sides. The remainder of the Specification is taken up with matters not relative to the present series.

[Printed, 10d. Drawing. See *Mechanics' Magazine*, vol. 40, p. 366.]

A.D. 1844, April 2.—N° 10,136.

PARSONS, JOHN. — "Improvements in machinery or apparatus
" for cleaning or sweeping chimnies and flues."

A flat circular brush of whalebone, cane, bass, hair, or other material, is attached to the end of a partly flexible rod of whalebone or similar material, covered with wire wound spirally round it, and having or not an outer coating of caoutchouc. Above and below the brush is fixed a wooden ring carrying small rollers, and a similar ring is fastened to a short rod proceeding upwards from the brush. Blocks of almost the same construction are attached to various parts of the handle. These are hollow and hinged, so that they may be opened to be put on the rod, and are held by a screw. The brush may be made of several arms, each held in a position at right angles to the rod by a spring, which allows them to incline and lie against the rod when the brush is pushed upwards into the flue. For working the machine, *the flexible rod is wound in a spiral groove on a large drum.*

This drum has motion given it by a winch-handle, and drives the brush up and down the chimney. Springs hold the rod against the drum, and a guiding plate directs the rod into the chimney. A dial to show the progress of the rod in the chimney may be fixed to the drum axle.

[Printed, 1s. Drawings.]

A.D. 1844, April 30.—N° 10,164.

JEFFRIES, WILLIAM.—“Improvements in sweeping chimneys and in apparatus for preventing chimneys from smoking.”

A joint for the rods of sweepers' brushes is described. To the ferrule of the lower joint two spring arms, having an outward tendency, are attached. These have at their tops projections which take over pins in the ferrule of the upper joint. To disconnect the parts, the springs are pressed together and the projections thus disengaged from the pins. A slider which passes between the springs prevents their detaching themselves when the machine is in use. For sweeping chimneys a brush combined with metal strips to act as scrapers is used. This is drawn up and down by a cord. Or spring arms carrying brushes may be attached to a central rod. When in use, the arms bend up and down, and bring the brushes in contact with the sides of the flue. The ends of the arms are fitted with rollers.

[Printed, 2s. Drawings.]

A.D. 1844, June 12.—N° 10,225.

KENT, GEORGE.—(*Partly a communication.*)—“Improvements in machinery for cleaning, polishing, and sharpening knives, forks, and other articles.”

Two flat circular brushes are fixed in slight contact opposite one another on suitable axes. Motion is given to one and the friction between them causes both to revolve, or they are mounted on the same spindle and have their relative distance adjustable by screws or otherwise. These brushes are enclosed in a drum. About the edge of the drum are slots through which knives may be passed between the brushes to be cleaned. The slots may be lined with elastic material to hold the knives. The brushes may be mounted either vertically or horizontally. Emery or cleaning powder is to be applied to the brushes, and for this purpose the

lower part of the wheel may have a scoop with dips into a vessel of powder. An additional small brush may be fixed to the outside of the machine, as may also a sharpener of steel discs.

For cleaning cylindrical or other shaped articles a hollow cylinder may be used, fitted with brushes on its inside and revolved by suitable means.

[Printed, 1s. 8d. Drawings.]

A.D. 1844, July 24.—N° 10,273.

KITE, JAMES.—“Improvements in constructing chimneys and “ in the means used for sweeping the same, parts of which “ improvement are applicable to other like useful purposes.”

The chimneys are built in stacks, and each stack is covered by a gable roof. Under this roof runs a tube and on or in this tube works a carriage. This carriage is drawn to one end of the stack by a chain from a spring barrel or other device, and towards the other by a chain, so that it may be drawn directly over any one of the chimneys. Links are fixed to the chains by which it may be hooked in any required position. On the carriage is a pulley and over the pulley a chain passes, carrying at one end a circular brush formed of a centre piece and two discs, between which strips of whalebone or other material are held. Two rows of bristles are thus formed. The brush is loaded and descends by its own weight, being drawn up by the chain. To secure it in position a spring catch is used, which is disengaged by a chain. For sweeping crooked chimneys an apparatus is used consisting of a series of narrow circular brushes alternating with wooden blocks on a flexible stem which has a roller at its end. For sweeping the triangular roof a triangular brush is used. It may be worked by a chain or by a rod. The chains are all led down the outside of the stack and may be contained in a special tube built for them.

[Printed, 2s. 4d. Drawings. See *Mechanics' Magazine*, vol. 42, p. 161.]

A.D. 1844, September 12.—N° 10,317.

FLOCKTON, WEBSTER.—(*A communication.*)—“Apparatus for “ sweeping or cleansing streets.” A frame is mounted upon fore and hind wheels. To its under part are attached two concentric rings. Below these rings is suspended a drum which has on

its upper surface studs carrying rollers which run on the rings above mentioned. Motion is given to the drum by a train of wheels from the axle of the hind wheels. From the axles of the drum levers pass through slots in its periphery. These levers carry at their ends segmentally shaped brushes. A certain amount of play in a vertical direction is thus permitted to the brushes. At the hinder part of the apparatus the brushes are lifted from the ground by a segmental rail, over which studs from the brushes and fitted with rollers work. A row of scrapers may be fixed in front of the sweeping apparatus, or wire scrapers may be placed in front of the brushes. By the action of the machine the dirt, etc. is swept into a ridge at one side.

[Printed, 10d. Drawing. See London Journal (*Newton's*), vol. 27 (*conjoined series*), p. 21.]

A.D. 1844, October 17.—N^o 10,356.

MABERLEY, FREDERICK HERBERT, GEARY, STEPHEN, and CROUCHER, JOSEPH.—“Improvements in the construction “ and arrangement of machinery or apparatus for clearing, “ cleansing, watering, breaking up, and raking of streets, roads, “ lands, and other ways.”

A frame is constructed upon four “locomotive wheels.” On the axle of the hind pair are set two concentric drums, the outer one of which is stationary, while the inner one receives motion in a direction opposite to that of the locomotive wheels from them by suitable gearing. Behind and touching the outer cylinder a roller covered with brushes works on the ground, and sweeps dirt, etc. up a short inclined surface into chambers on the circumference of the inner cylinder; the matter thus collected is carried round to the upper part of the apparatus, and then another smaller brush roller sweeps it from the drum into a receiver carried on the front part of the carriage. Both these brushes receive motion from the locomotive wheels. Scrapers or flat wire brushes may be attached to the front part of the machine.

Instead of forming chambers on the periphery of the drum, hide tanned with the hair on, or any “material having a surface “ presenting asperities of similar character,” may be fastened on the drum, to receive the dirt, etc. from the brush. In this case a metal scraper may be substituted for the second brush. Instead of the drums an endless band of prepared hide or other material, working over rollers, may receive the dirt and carry it to the

receiver. Or the brush may deliver its sweeping direct into the receiver, which is hung low for the purpose, and is moveable.

Another machine is described. An endless chain working over rollers carries brushes which act on the ground. To each brush, behind it, is attached its scraper, and each combined brush and scraper has a handle which passes through the chain, and by which may be caused to assume various positions. A spring keeps it perpendicular to the chain, but in passing over the front roller the handle is depressed by the roller, and the brush caused to lie along the chain. On reaching the higher part of the front roller, it is said, the scraper will discharge its contents into a receiver carried in front of the apparatus. In a modification of this machine, figured but not described, the rollers are placed vertically one over the other, and the brushes are represented as preserving an inclined position till they reach the top roller, when they appear to fall back to the perpendicular, and so discharge their contents into the receiver.

In another machine a serrated wheel on the axle of the locomotive wheels has a lever carrying a brush hinged to each projection. On the outer extremity of each lever is a stud, which works in a groove on the face of a fixed wheel, to regulate the position of the brush, which is caused to sweep the ground, and on arriving at the lip of the receptacle drops to discharge its sweepings into it. A brush with a telescopic spring handle is figured with this machine. It is intended to allow the brush to pass over "asperities" in the ground.

A combined roller and sweeper is described. Motion is given from a toothed wheel on the end face of the roller to a brush roller which sweeps into a receiver in front of it.

A street sweeper may be made with two brush rollers instead of one. They are placed in line, and are hinged to a piece between them, so that they can assume various angles to each other. This piece is supported by a roller. Their outer ends are supported in bearings in the usual way. The object of this is, by doubling or bending the brush, to make the sweeping surface smaller. The main axle is formed of two pieces which slide on one another, and have a screw cut on them. A female screw works over them to shorten the axle. Motion is given each brush by a toothed wheel on the face of each locomotive wheel, which gears into another on the axle of each brush.

A street sweeper is shown, in which the brush is carried by a frame having one end supported by the main axle, and the other by a roller. Radial arms carry brushes at their ends set on spring joints, which bring the brushes to a position at right angles with the radial arms when they are not drawn forward by pressure against the ground.

[Printed, 3s. 8d. Drawings.]

A.D. 1844, December 7.—N° 10,422.

METCALFE, THOMAS.—“Improvements in the manufacture of brooms, brushes, or other similar articles.”

Brooms or brushes are made of stiff fibre or bristles in one part and soft in another, so that the softer parts may follow the hard and take up what they leave. The substances for the harder parts may be “bass, whisk, cane, kiava, cocoa-nut fibre, and “whalebone.”

A street scraper and broom are combined, the scraper being in front of the broom. The scraper may be adjustable so as to be moved as the broom wears out, or it may be cut down for the same purpose.

Tooth brushes are made with stiff bristles in the centre, cut to a sharp angle, and the sides of softer materials.

[Printed, 10d. Drawing. See London Journal (*Newton's*), vol. 26 (*conjoined series*), p. 387.]

A.D. 1845, January 30.—N° 10,503.

ALLEN, MATTHEW.—“Improvements in stoves and apparatus for heating.”

A stove is described with helical flues. To cleanse these flues a flat square brush on a helical stem is used. The stem has a curved handle at the end by which it is held.

[Printed, 1s. Drawings. See *Artizan*, vol. 5, p. 71.]

A.D. 1845, May 1.—N° 10,647.

DARNELL, JAMES.—“Improvements in machinery for beating and brushing carpets.”

A series of beaters driven by springs and actuated by a tappet wheel which meets projections on a rod at right angles to the beaters, is described. A carpet is stretched over rollers so as to

be exposed to the action of the beaters. Above the beaters are two drums. These drums carry an endless band on which brushes are mounted, and as the drums revolve the brushes are worked against the carpet. The drums are driven by toothed wheels actuated from the same source as that which drives the tappet wheel of the beaters. The whole machine is mounted on wheels on a tramway, so that it can be moved backwards and forwards in front of the carpet.

[Printed, 1s. 6d. Drawings.]

A.D. 1845, October 11.—N° 10,880.

BARBER, EDMUND.—“Improvements in graining and decorating in oil distemper and other colors, and in imitating marbles, “granites, fancy and other woods, and in the apparatus and “instruments to be used therein.”

The only part of the improvements relating to the present series consists in the construction of a machine “for spotting or throwing “paint” in marbling surfaces.

An axis is mounted in a cylindrical case set horizontally. On the axis are mounted tufts of bristles or similar material. The axis is revolved by a handle. To one side of the cylinder is attached a vessel full of paint, which is permitted to flow into the bottom of the cylinder; the other side of the cylinder is open. Above the opening is a wire, against which the brushes strike when they are revolved, and so throw out a shower of paint drops through the opening. The apparatus may have a double bottom to catch overflow. Several brushes may be mounted side by side with a common axis to throw different colours, the various reservoirs being opened or closed at once, or two or more may be mounted above one another to throw different colours; in this case the axes are connected by a band so as to revolve together. By means of multiplying wheels increased velocity may be attained. The wire against which the brushes strike is adjustable to regulate the size of the spots.

[Printed, 2s. 4d. Drawings. See Patent Journal, vol. 2, p. 773.]

A.D. 1845, October 10.—N° 10,884.

BARSHAM, JOHN.—“Improvements in the manufacture of “mattresses, cushions, brushes, and brooms, and in machinery “for preparing certain materials applicable to such purposes.”

A fabric is made with a "spaced warp" and a weft of loosely twisted cocoa-nut fibre cord. It is then cut between each two lines of warp, the strips thus obtained are doubled and fastened to handles to make brooms. The cords may be combed out before or after fastening the fabric to the stock.

Or brushes may be made by doubling cord backwards and forwards over pins in a frame. The pins are then removed, the coils pressed together, and secured by sewing at both ends. Handles are fastened where the sewing is, and the coils divided down the middle to form two separate brushes.

Or short lengths of cords may be doubled and inserted in dove-tail grooves by aid of a forked instrument (figured).

Or pieces of cocoa-nut husk, with the fibre adhering, may be fixed in similar grooves, and the fibre afterwards combed out.

[Printed, 2s. 6d. Drawings.]

A.D. 1846, November 5.—N° 11,440.

TEAGLE, ROBERT.—"Improvements in chimney pots, and in " apparatus for cleaning them."

Arms spring from a socket, having brushes at their extremities. They are driven outward by springs, but may be drawn together by strings, to introduce them into the chimney. Rollers are fixed to the ends of the arms, or a central arm carrying a roller is added. The brushes have hemi-spherical or semi-circular stocks, with the bristles radiating, so that when the whole apparatus is expanded, the bristles meet and form one continuous brush.

[Printed, 1s. Drawings. See Patent Journal, vol. 2, p. 859.]

A.D. 1846, November 21.—N° 11,459.

BARSHAM, WILLIAM JAMES.—"Improvements in manufac-
" turing brooms and brushes."

Tufts of cocoa-nut or other fibre are encircled in metal ferrules, and the ferrules are then inserted in holes in the stock. These tufts are made from fibre which has been spun into cords. A machine for affixing the ferrules is described. The cord is led over a ratchet wheel and through an aperture in a table. The ratchet wheel actuates a crank which brings up a bent piece of metal so as partly to surround the cord. A forceps actuated by a lever moved by the workman, tightens the ferrule round the cord.

The cord is then divided, and the separate pieces pressed in a die to tighten the ferrule still further. The fibres are then opened out by being held against a revolving cylinder furnished with card teeth.

[Printed, 3s. 4d. Drawings. See Patent Journal, vol. 3, p. 36.]

A.D. 1847, April 20.—N° 11,667.

GIDDY, OSMAN.—“Improvements in apparatus for sweeping
“and cleansing chimneys and flues.”

A brush for chimney sweeping is described. Springs have one end fixed to the central stock, while the other slides in a groove in it. They are bent so as to stand out from the centre. At the middle of each spring a brush is fixed. To hold the apparatus collapsed, a bolt passes into a hole in the stock of each brush, and all the bolts may be drawn out by a line carried down the rod, which may be hollow to contain it.

In another sweeper the brushes are mounted on springs pivotted at right angles to the rod; the end of each spring rests in a notch in a spring within the rod. The spring carrying the brush allows it some play, but an extra pressure forces its end out of the notch, and allows it to yield further.

In a third arrangement the brushes are mounted on curved springs, which stand out from the rod, and have the length of their play regulated by a spring. They are confined by a catch at the top, which is set free by raising a lever. This lever has a spring which yields when the apparatus is pressed upwards, but acts to withdraw the catch when it comes in contact with a narrow part of the flue, such as the top of the chimney-pot, as it descends. “Split scrapers” may be used in conjunction with, or in place of, brushes. At the top of each sweeper are wheels, bearing in their peripheries smaller wheels at right angles. Flexible joints may be made by the use of vulcanized rubber, either as a connecting link inside a ferrule, and fastened to both parts of the rod, or otherwise. Another flexible joint is shown. A short square rod from one length of the rod passes through a square hole slightly bushed in the end of the other rod. The end of this short rod is rounded off, and bears against a spring. The squareness of the hole prevents one length turning without the other.

[Printed, 1s. 6d. Drawings.]

A.D. 1847, May 4.—N° 11,686.

WRIGHT, LEMUEL WELLMAN.—“Improvements in machinery
“or apparatus for sweeping or cleansing chimneys, flues, and
“other similar purposes.”

The greater part of this invention relates to methods of making brushes expanding by means of india-rubber. This may be done by making the stock of the brush of that material, or, in addition to that, levers may be jointed to the outside of the brush, and also to sliding-pieces on the rod, and these sliding-pieces being drawn together by an india-rubber ring, the brush is expanded. It is held contracted by a catch, which is set free by any convenient device in the handle. Or the brushes may be mounted on bent levers, which are kept out from the centre by an india-rubber ring about the rod, on which they rest. This allows them to yield. Or the stock of the brush may be hollow, and of india-rubber, and may be expanded by having air driven into it through the rod. The rods may be made of whalebone strips with an outer covering of india-rubber. The joints may consist of an india-rubber ferrule tightly bound over the point of junction. A “universal revolving guide ball” is fixed at the top of the rod, above the brush.

For sweeping horizontal flues, a brush is mounted on a block carried by a pair of wheels. The axle of these wheels works in an inclined groove, so that in pushing the brush in, it is raised against the top of the flue, and in drawing it out, it is brought against the bottom. A scraper or short stiff brush is also attached, so as to work against the bottom of the flue before the other.

[Printed, 10d. Drawing. See London Journal (*Newton's*), vol. 31 (*conjoined series*), p. 423; Patent Journal, vol. 3, p. 575.]

A.D. 1847, November 13.—N° 11,961.

TAYLOR, GEORGE.—“Improvements in machinery or apparatus
“for sweeping and cleaning chimneys, funnels, flues, drains, and
“other places.”

Brushes are mounted on radial arms; these arms have on them “portions of spheres” which move in spherical sockets, the arms projecting through a slit, so that they may have motion in one direction, vertical or other, or, with two slits, in two directions. The other ends of the arms are acted on by springs.

which tend to keep them extended, but allow a certain amount of play. Instead of spherical surfaces, conical or cylindrical surfaces may be employed, and the springs may be arranged in various ways. Or a bent spring may press a lever outwards, and the lever may work against the flattened end of a lever carrying the brushes, so as to keep it extended, friction wheels being placed on the end to allow of play. A "spherical roller" is mounted at the top of the rod in a forked stem, the end of which rests on a plate of elastic material.

[Printed, 1s. Drawings. See Patent Journal, vol. 5, p. 85.]

A.D. 1848, May 8.—N° 12,090.

ALLIOTT, ALEXANDER.—"Improvements in apparatus used in the working of steam boilers, also in apparatus used in cleaning flues."

An annular india-rubber case, strengthened with india-rubber rings about it, and hollow inside, is fitted on the outside with wire cards or brushes. A pipe is attached to it by which it can be inflated. Through the centre opening a rod, like that used for chimney sweeping, passes. Ropes attached to rings on both sides join to centre ropes, one of which is led over a pulley at the end of the rod, while the other leads back along the rod. By the ropes the apparatus can be drawn up and down the flue. The rod has a guide roller at the end, and the Drawing shows an additional brush fixed near the end.

[Printed, 1s. 8d. Drawings. See Mechanics' Magazine, vol. 46, p. 387; Artizan, vol. 6, p. 274; Patent Journal, vol. 5, p. 451.]

A.D. 1848, May 11.—N° 12,153.

HANCOCK, CHARLES.—"Improved preparations and compounds of gutta percha, and certain improvements in the manufacture of articles and fabrics composed of gutta percha alone, and in combination with other substances."

Stocks or handles for brushes may be made of gutta percha. For flat-backed brushes, several pieces of sheet gutta percha, of suitable shape, are placed together, and holes bored for the knots of bristles, which are secured in the usual way by wires. A solid piece is then added behind and the whole warmed and pressed until it all adheres together. Or other materials may be also employed, either for the piece holding the bristles or the outermost

piece. For brushes with round handles, a stick of gutta percha or other material has grooves formed at one end in which the bristles are placed. A warm solution of gutta percha is used to fix them in, and one or two pieces of stout gutta percha are wrapped round outside. Or the bristles may be drawn through small tubes, which may be afterwards made up into brushes of any form and fixed to a handle. The tubes may be united by warmth and pressure, or by liquid gutta percha.

[Printed, 10*d.* Drawing. See *Mechanics' Magazine*, vol. 49, pp. 490 and 502; *Artizan*, vol. 7, p. 83; *Patent Journal*, vol. 6, p. 76.]

A.D. 1849, January 11.—N^o 12,412. (* *)

WALKER, WILLIAM. — “Improvements in machinery or apparatus for cleaning roads or ways, which improvements are also applicable to other similar purposes.”

This invention consists, firstly, in the “construction and arrangement of a machine designed for the purpose of cleansing or sweeping the surface of the road or way, and also the side channels, leaving the soil so swept in a ridge parallel to the line of road,” to be subsequently raised by suitable means into a cart or other vehicle. Below the framing of the machine, which is mounted on suitable wheels, works a cylindrical brush, which is so arranged in its bearings, as to be capable of assuming different positions in relation to the line of motion of the machine, the latter being also furnished with a rotary brush at each side for clearing the channels. One of these channel brushes only is used at one time, the cylindrical brush being placed at different angles thereto, so as to cause the material swept together to be deposited either at one side of, or near the middle of, the road, as may be desired. The side brushes are capable of adjustment, through the medium of screws, so as to vary the diameter of the circle in which they work.

Secondly, in the employment of a machine for raising the material already swept into ridges by the first machine, into a suitable cart or receptacle, this machine carrying at its lower part a cylindrical brush, which collects the material into a reservoir, from which it is raised by an endless chain of buckets. This machine may, if desired, be used alone as a scavenging machine.

Thirdly, in the “construction and application of a low-bodied cart, nearly circular, constructed of sheet iron or other material, and so arranged that it may be raised or lowered to any con-

"venient height from the surface of the road," which may be used "as a tender to the second-named machine, or as an ordinary scavenger's cart, to be filled in the usual manner." This cart may be variously modified, and is furnished with a curved rack and certain gearing to be worked by a winch, for the purpose of tilting. It may also be used as a water cart, being in this case furnished with a rotary pump, discharging pipe and disc, for the purpose of duly distributing the water.

[Printed, 1s. 2d. Drawings. See *Mechanics' Magazine*, vol. 51, p. 43; *Patent Journal*, vol. 7, p. 181.]

A.D. 1849, December 19.—N° 12,907.

WHITWORTH, JOSEPH.—"Improvements in machinery or apparatus for cutting metals, and also improvements in machinery or apparatus applicable to agricultural and sanatory purposes."

A machine for "cleansing the channels of streets," is described. Two cart wheels carry a frame and shafts. To one of these wheels is fixed a spur wheel which gears into a pinion on the end of a shaft. This shaft works in a ball-and-socket joint attached to the frame, and can be set at any inclination to the ground. This shaft carries at its other end a frame; this frame carries a shaft at right angles to the first, on which is a flat circular brush. Motion may be communicated by gearing from one shaft to the other, and so to the brush, but by means of a clutch they can be thrown out of gear. A lever attached to the brush frame regulates the position of the brush, which is pressed on the ground by a spring. By means of a chain over a pulley, the brush may be entirely raised from the ground.

[Printed, 1s. 2d. Drawings. See *Mechanics' Magazine*, vol. 52, p. 518; *Practical Mechanics' Journal*, vol. 3, pp. 147; *Patent Journal*, vol. 9, p. 187.]

A.D. 1851, March 10.—N° 13,549.

HORN, THOMAS.—"Apparatus for cleaning carpets, matting, and similar fabrics."

The carpet is led over two rollers. These rollers have pieces of webbing, to which the carpet is attached. It is rolled on one of the rollers, and delivered from it to the second. After passing from the first, it is subjected to the action of a series of beaters worked by tappets on a cylinder. Thence it passes between two revolving brush rollers, and thence to the second roller, upon

which it is wound. If further cleaning is required, the carpet is passed in a similar way under a damping roller, then between brush rollers of finer sort than the former brushes, and then below a heated drying roller.

In a modification, the beaters are hinged to a revolving cylinder, and the brushes have a to-and-fro motion given them by a crank. All the machinery is driven by suitable gearing from a pinion driven by hand.

[Printed, 10*d*. Drawing. See *Mechanics' Magazine*, vol. 55, p. 221; *Artizan*, vol. 9, p. 263; *Patent Journal*, vol. 11, p. 303.]

A.D. 1851, March 24.—N^o 13,574.

HAWKINS, THOMAS.—“Improvements in brushes.”

A bundle of bristles, after being cemented, is drawn through a conical ferrule, the points towards the narrow end. A flat metal cap is secured on the top, the space between the top of the bristles and the cap being filled up with cork shavings. On this cap is fixed a conical socket, which holds the end of the handle.

When the handle is inserted within the mass of bristles, it is secured by having around it a strip of metal within the bristles, which it forces against the external ferrule, and so holds the bristles tight.

The handle may be secured by having a piece of metal placed in a slit in it, with its ends fastened to the ferrule.

The ferrule may be made with rims at each end, the upper of which fits into a groove in the vice, while the lower compresses the bristles.

The sides of the ferrule may be made so that they can be turned back, and riveted to the handle.

The bristles may be inserted in one ferrule, and the handle in another, and the two ferrules fastened together.

A solution of gutta percha is used for cement.

[Printed, 10*d*. Drawing. See *Mechanics' Magazine*, vol. 55, p. 298; *Practical Mechanics' Journal*, vol. 4, p. 227; *Patent Journal*, vol. 12, p. 25.]

A.D. 1851, August 14.—N^o 13,720. (* *)

BLUNDELL, JOSEPH BIRKBECK.—“Improvements in machines for sweeping and cleansing roads and ways.”

“The distinguishing feature of this improved machine is, that while it is moved forward” “in a right line, it does its work in a diagonal or sidelong direction, that is to say, the sweepings are moved towards the sides of the road or way, and there

“deposited in continuous lines or heaps ready for subsequent removal.”

The machine consists of a frame mounted on bearing wheels, these wheels being each fixed upon a separate axle which extends partially across the machine, and on each of these axles is a bevil wheel, which latter wheels, through the medium of other bevils, and certain shafts, chain pulleys, and chains, give motion to a cylindrical brush placed diagonally below the frame. In advance of the cylindrical brush is a straight fixed brush. Certain pinions and racks serve the purpose of raising or lowering the cylindrical brush and the upper chain pulleys. In addition to the bearing wheels the machine is furnished with “front” wheels, “for the purpose of keeping the brushes travelling in contact with the ground.”

[Printed, 8d. Drawing. See *Mechanics' Magazine*, vol. 56, p. 142; and *Artizan*, vol. 10, p. 66.]

A.D. 1851, December 11.—N° 13,857.

MASTERS, THOMAS.—“Improvements in retaining and drawing off aerated and other liquids, and in charging vessels with gaseous fluids applicable to vessels for holding solid matters, and also as a fastening for utensils and apparatus.”

Amongst the numerous matters mentioned in this Specification, the only one referring to the present series consists of a fastening for the brush-discs of knife-cleaning machines. Upon the spindle, which passes through the centre of the discs, slide two flanged sockets. One of these is mounted directly upon the spindle, the other upon a screwed socket, which slides on the spindle. Between the two are the brush discs. These sockets are connected by a short tube of vulcanized rubber. Thus, when the screwed socket is screwed up, the two are brought together, the rubber tightened, and a connection with some elasticity in it produced.

[Printed, 1s. 4d. Drawings. See *Mechanics' Magazine*, vol. 56, p. 509.]

A.D. 1852, April 20.—N° 14,077.

GRIFFITHS, ROBERT.—“Apparatus for improving and restoring human hair.”

“The invention consists of constructing combs, brushes, or such like instruments for combing and brushing the hair, that when in use and passed through the air electric currents may

" be given off, and thereby the skin caused to be stimulated, and
" a healthy action produced, which will have the effect of restoring color to the hair, and generally to improve its appearance.
" Combs and brushes may either be made of different metals, so
" as to become a battery in themselves, or they may be of metal,
" or partly of metal, and have batteries connected therewith when
" in use, and the arrangement of the parts may be greatly varied."

By a Memorandum of Alteration, dated February 15, 1855, "April 20," was substituted for "October 20" in the date, and some verbal alterations made in the description to render it clear that the teeth are to be properly insulated.

[Printed, 8d. Drawing.]

A.D. 1852, August 19.—N^o 14,268.

CLOUGH, CHARLES BUTLER.—"Improvements in machinery
" or apparatus applicable to the purposes of brushing and
" cleaning."

For general purposes of brushing and cleaning a brush fixed on a spindle receives motion from another wheel by means of an endless band passing over a pulley on the brush axle. This wheel is turned by a handle. The brush may be of varied shape, and may be used, amongst other purposes, for brushing boots.

For applying colour a rotary brush is fixed to dip in a receptacle of colour, and has its other side against a roller. The paper or fabric to be coloured is passed between the roller and the brush, which is turned by a handle.

[Printed, 6d. Drawing. See Mechanics' Magazine, vol. 58, p. 196.]

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1852.

A.D. 1852, October 1.—N^o 78.

SMITH, WILLIAM.—"Improvements in machinery or apparatus
" for cleaning currants, raisins, and other fruits or vegetable
" substances."

The fruit is passed from a hopper over a roller. Against this hopper an adjustable brush bears, and this checks and regulates the passage of the fruit. It is received in a conical receptacle of wire gauze, within which revolves a brush of similar form, which has the bristles set in a spiral form. The dirt and extraneous matters are driven outwards and pass through the gauze, and the cleaned fruit is received in a drawer at the bottom. Between the coils of the brush tufts of bristles are inserted to check the descent of the fruit.

[Printed, *ed.* Drawing.]

A.D. 1852, October 1.—N° 105.

BROOMAN, RICHARD ARCHIBALD.—(*Provisional protection only.*)—"Improvements in machines for cleaning knives."

"The improvements consists in placing the brushes or other cleaning and polishing surfaces horizontally, instead of vertically as is now practised in all knife cleaning machines. Two circular brushes are mounted horizontally in a frame, and are fixed on an axis, on which is a bevelled tooth wheel set in motion by another bevelled wheel mounted on a spindle, which extends to the outside of the frame, and is worked by a crank handle. The handles of the knives lie upon a rest provided for them all round the machine, while the blades are inserted between the brushes. Polishing powder is supplied as required through openings provided for the purpose in the frame and in the back of the top brush, or it may be supplied through an opening near the axis when, from centrifugal force, it will get distributed all over the brushes. The outer edges of the bristle holders are fitted with bristles for the purpose of cleaning the guards or rests. The advantages of this machine over one of equal size where the brushes act vertically, consists in its capability to clean from three to four times more knives in the same time, and also in its cleaning the guards or rests, which the vertical machines do not accomplish."

[Printed, *ed.* No Drawings.]

A.D. 1852, October 2.—N° 148.

TURNER, EDWARD WILLIAM KEMBLE.—"Improvements in machinery for sweeping or cleaning chimnies, also for more effectually extinguishing them when on fire."

The "improvements cause the brush to ascend in a semi-collapsed form, by having on the handle a freely sliding block, at the top of which, and attached thereto, is a notch piece, with a groove around its periphery; at right angles with the face of the block are cut a series of notches to receive the shanks of as many metal sockets; these shanks are pierced to receive a wire, which passes through them and round the groove, holding them securely together. The sockets are hollow, and of a conical form, into which the whalebone or other material is fixed, forming a circular brush. The whalebone or other material is held tight in the sockets by the compression of the larger end." Above the block described is placed another block, which is screwed to the handle, and supports the guide wheel. Under the block first described is a fixed piece, which prevents it from slipping too low; this piece also forms the top of the handle, and screws into the upper block.

"While ascending, the machine will pass readily on, having no resistance from the shape of the brush; but on descending, the sides of the chimney will form a resistance to the brush, causing the socket block to rise, when the tails of the sockets will be pressed against the upper block, and cause them to lift, and be held at right angles with the handle.

"To keep the head of the machine in the centre of the chimney, about 12 inches below the head described," is placed an "improved ball-and-socket joint, the socket of which is elongated; and screwed to the top is a cap having a female screw, or a ferrule to receive the cane or handle on the outside; at the bottom of the cap is a stud piece, projecting downwards, and nearly touching the ball, the top of which is provided with a hollow space, suited to the form of the stud, and which receives the same. Upon being raised the hollow ball will take on to the stud, and thus hold the machine fast while ascending; but on descending, the stud being released, the head of the machine will be free to take its position in the line of least resistance, viz., the centre of the chimney, thus sweeping every part effectually."

[Printed, 6d. No Drawings.]

A.D. 1852, October 6.—N^o 273.

CHATWIN, JOHN FREDERICK.—"Improvements in the manufacture of brushes."

A fabric is woven in which the weft is formed of bristles, the fabric being of breadth sufficient to hold the bristles securely, but leave their ends projecting sufficiently to form a brush. The fabric is then cut into suitable lengths and wound on a handle, or folded and held between two surfaces, or made up into a brush in other convenient manner. Cement is placed between the layers of the fabric or on the ends of the bristles to hold the brush together. Cement may also be employed in the process of weaving.

[Printed, 4d. No Drawings.]

A.D. 1852, October 11.—N° 334.

SEARBY, GEORGE.—(*Provisional protection only*).—"The cure of smoky chimnies, and the prevention of accumulations of soot in flues."

"A cap is to be fixed on the top of a chimney pot, or made as part thereof, which cap is to contain a brush, secured from injury by yielding flaps enclosing the same; the said brush to be connected with an endless or single chain passing over a pulley within the cap.

"The brush to be worked by means of a winch and rollers, both upwards and downwards, so as to effect the purpose.

"The motive power applied may be either by spring or hand with the attachment of a weight."

[Printed, 4d. No Drawings.]

A.D. 1852, October 19.—N° 440.

ALLMAN, FENNELL HERBERT.—"Improvements in the manufacture and construction of brushes."

China, glass, porcelain, metal covered with glass, enamel, or porcelain, and similar materials are used for making the backs of various sorts of brushes. The bristles may be fixed in the porcelain, or may be set in a slip of wood which is let into the porcelain back.

In the provisional specification, it is said that brush handles may be hollow, and contain absorbent material for holding fluid. Such fluid is expelled by a piston, or the handles may be made of "collapsible" tin tubes, or other means for pressing out the fluid may be employed.

[Printed, 6d. Drawing.]

A.D. 1852, November 5.—N° 641.

HALL, COLLINSON.—“An apparatus to be used in the carriage
“ of solid and liquid bodies.”

The apparatus consists “in a revolver or carriage formed by
“ two large rims, discs, or wheels, united as closely as possible
“ by a central axis or gudgeon,” to which shafts or other appli-
ances for traction are attached. “The inner circular surfaces”
of the wheels “are connected by several rods or bands of metal,
“ gutta percha, or other material; and the outer circular surfaces
“ are fitted to bags or other receptacles,” for carrying liquid
matters. Amongst various other uses, the apparatus may be used
as a street sweeper, but no particular description is given of the
manner of application. It is stated that “the wheels acting upon
“ a large circumference will produce less friction upon the
“ brushes;” and that “the dirt will be delivered into a sort of
“ hopper that opens twice or three times upon each revolution
“ of the drum.”

[Printed, 8d. Drawings.]

A.D. 1852, November 6.—N° 659.

GOSNELL, JOHN, GOSNELL, EDWARD, and GOSNELL,
CHARLES.—“Improvements in brushes.”

Instead of distributing the bristles in hair brushes equally over
the surface of the brush, they are arranged in a “series of rows
“ or blocks” with small intervening spaces. The exterior lines
of bristles in each “block” incline inwards to support the others.
The bristles may be “even cut” or “uneven cut,” or both com-
bined. A label of porcelain or gutta percha, instead of metal,
may be attached to the back of a brush. Paint brushes have a
ring of metal or other metal which moves over the brush, and
clips all the bristles, so that their working length may be
regulated.

[Printed, 6d. Drawing.]

A.D. 1852, December 9.—N° 1014.

MASTERS, THOMAS.—“Improvements in machinery or appa-
ratus for cleaning knives and other steel articles.”

The invention “consists of improved machinery for cleaning
“ knives and other similar steel articles, in which the articles to
“ be cleaned are introduced between two endless elastic straps

“ or bands, provided with pieces of leather or bristles, or both, on their opposing surfaces, and stretched over a drum or cylinder, or over and between two drums or cylinders, placed either horizontally or vertically in a case or frame, rotary motion being imparted to such drum or cylinder, or to one of the drums or cylinders, whereby the endless bands are made to rotate;” and the bands are made “to exert the necessary degree of pressure on the articles placed between them to be cleaned by means of friction rollers, or by a stretcher placed in the interior of the cylinder. The polishing powder is supplied through apertures in the bands, or between the cleaning surfaces. The knives or other articles to be cleaned or polished are introduced through apertures in the top or sides of the machine, and their points rest on bars or stops at the side of the machine opposite to that at which they are inserted. By these arrangements the knives are equally cleaned and polished throughout their entire length.”

[Printed, 8d. Drawings.]

A.D. 1852, December 16.—N° 1077.

BLADES, RICHARD.—“Improvements in the method of cleaning sewers and drains, and in the machinery or apparatus connected therewith.”

The screws are provided with “manways or openings at suitable distance.” To cleanse the portion between any two of the manways, they are opened, and “a small float of any suitable form or material is then to be placed in the water at the upper opening, and floated down to the lower opening by means of the stream or current in the sewer or drain. This float is attached to and carries with it a small line of Manilla grass, hemp, silk, or other suitable light substance, and thus a communication is established between the two openings. By means of this line (or a stronger one attached thereto) one end of a chain of suitable strength is next drawn through, and is then attached to a ‘crab’ winch, or other similar lifting or winding apparatus, worked either by manual labour or by steam or other power. Suitable dredging or excavating tools are then attached to the chain and drawn through, followed by buckets, scrapers, and sweeping brushes. The mud, sand, silt, or other deposit is thus swept down to the lower opening, whence it can

“ be raised in buckets, or in any other convenient manner, after
 “ which the sewers or drains may be ‘flushed’ with water. In
 “ the event of any sewer or drain becoming entirely obstructed
 “ or ‘silted up,’ communication between the two manways or
 “ openings must be established by means of a jointed rod con-
 “ structed of cane, wire, or other suitable material, which is to be
 “ forced through the upper stratum of the silt, which is the most
 “ penetrable portion; and when once communication has been
 “ established, the cleansing operations will proceed, as in the
 “ former instance.”

[Printed, 8d. Drawing.]

A.D. 1852, December 20.—N^o 1114. (* *)

WATSON, CHARLES. — (*Provisional protection only.*) — “Im-
 “ provements in carriage and stable brushes.”

“ These improvements are effected by making brushes of that
 “ class denominated as carriage and stable brushes, with backs
 “ composed entirely of gutta percha or other analogous substance,
 “ whereby pliancy will be given thereto, the backs will not be
 “ injured by the water used therewith, and they will be generally
 “ rendered more useful.” The inventor says, “ I take a piece of
 “ gutta percha, and perforate it with holes suitable to receive
 “ the ordinary bristle stops, the lower ends whereof I fix therein.
 “ I then cover the back with gutta percha solution or cement,
 “ and place thereon a covering piece of gutta percha, which will
 “ thus be firmly secured to the other portion of the back, also of
 “ gutta percha, and forms a brush as aforesaid.”

[Printed, 4d. No Drawings.]

1853.

A.D. 1853, January 15.—N^o 107.

YOUNG, JAMES HADDEN. — “Improvements in brooms or
 “ brushing apparatus.”

The inventor says:—

“ My invention has for its object the construction of a hand
 “ sweeping or brushing apparatus, and consists in an improved

“ method of sweeping carpets, floors, pavements, or similar surfaces, so that whilst the dirt or dust is removed into a receptacle, the finer particles are prevented flying about and settling on surrounding objects. For this purpose I construct a framework supported on one or two wheels, and connect these wheels with an axis on which are fixed suitable brushes, and by means of a pitch chain or other suitable gearing I give a rapid rotatory motion to the aforesaid brushes by pushing or dragging the framework to and fro, the friction of the wheels on the ground giving the necessary motion.

“ I cover the apparatus partially or wholly with calico or other suitable material pervious to the air produced by the rotation of the brushes, but impervious to the dust, and thus prevent it escaping. A dust pan is used into which the rubbish is swept, and which can be removed and emptied when necessary ; it is provided with a lip or rim to prevent the dirt falling out or being brushed out when the motion of the brush is reversed.”

[Printed, 8d. Drawing.]

A.D. 1853, April 14.—N° 916.

TITTERTON, GEORGE.—“ Improvements in brushes.”

The “ invention consists in a new mode of preparing bristles, “ whalebone, whisk, bass, horsehair, cocoa-nut fibre,” and other materials for brush making. The ends of the bristles are sharpened on a wheel of pumice stone, leather covered with emery, or other suitable material. The pointing may be done before or after attaching the bristles to the back of the brush, but it is better to point them first.

[Printed, 4d. Woodcut.]

A.D. 1853, April 15.—N° 918.

ALLEN, WILLIAM, and MURRELL, WILLIAM.—“ Improvements in the mode or means of cleansing bottles or other similar articles.”

Motion is imparted by a treadle or otherwise to a vertical axis standing in a vessel of water. This axis carries brushes so arranged as to work against the inside and outside surfaces of a bottle inverted over it. The end of the axis carries a brush to clean the bottom of the bottle inside, and has sufficient play

to admit of its passing round it. A brush is also fixed so as to work against the bottom of the bottle outside.

[Printed, *sd.* Drawing.]

A.D. 1853, April 19.—N^o 943.

SMITH, FREDERICK HENRY.—“Improvements in apparatus for cleansing the interior of tubular boilers and other hollow articles.”

A brush is formed on a handle of suitable length, it is in several parts, connected by springs at the end. The parts consequently separate when inside the tube and work against its sides. The brushing surfaces may be of suitable materials and various arrangement. Scrapers may be attached to the end.

[Printed, *cd.* Drawing.]

A.D. 1853, May 18.—N^o 1225.

CLARKSON, CHARLES.—“An improved duster or dusting brush, painting brush, and all other descriptions of brushes, the handle of which passes through the centre, and the hair or bristles are bound or tied round it.”

The improvements are described as follows:—

“My invention consists in fixing a plate of metal or other material on the handle of a brush, known by the name of a duster or dusting brush and painting brush, close to the top of the bristles, in such a manner that the handle cannot fall through, and is done as follows:—I cut a groove with a saw an eighth of an inch deep round that part of the handle that is close to the top of the bristles; I then cut a piece off of each of two sides of the handle lengthways parallel to each other, an eighth of an inch deep at the bottom part next to the bristles and tapering towards the top, rendering the handle flat or elliptic instead of round as before, and leaving a groove or slot on on each of its remaining sides. I then take a circular plate of metal or other material of the same circumference as the brush at the top part of the binding of the bristles, and an elliptic or an oval-shaped hole pierced through its centre of the same size and shape as the handle of the brush at the bottom part after its two sides have been cut away. I then pass the handle of the brush through the hole in the centre of the plate, by which means I bring the plate flat on the top of the bristles; I then

“ turn the plate round till its two inside edges become inserted
 “ in the two grooves or slots that are left in the handle for that
 “ purpose ; a small space will be left between the hole in the
 “ plate and the flat part of the handle, which I fill up with putty
 “ or other cement, by which means the plate is permanently
 “ fixed and the operation is complete.

“ The object of this invention is to prevent the handle of the
 “ brush from falling through.”

[Printed, 4d. No Drawings.]

A.D. 1853, May 20.—N° 1250.

GILBERT, HENRY.—(*Provisional protection only.*)—“ Improve-
 “ ments in apparatus for cleaning boots and shoes.”

“ This invention consists of combining rotatory brushes with
 “ a suitable axis or spindle, and giving motion thereto by a
 “ treadle.”

[Printed, 4d. No Drawings.]

A.D. 1853, July 15.—N° 1690.

GOODYEAR, CHARLES.—“ Improvements in the manufacture
 “ of brushes and substitutes for bristles.”

“ This invention consists of forming the handles and backs of
 “ brushes by combining india-rubber with sulphur, with or with-
 “ out other matters, and subjecting the compound to heat till
 “ the same is changed into a hard substance ; and the making of
 “ substitutes for bristles consists of forcing such compound
 “ through perforations in metal plates, so as to obtain the same,
 “ when subjected to heat, in a state to be used as bristles.”

[Printed, 4d. No Drawings.]

A.D. 1853, July 16.—N° 1705.

DUNCAN, JOHN WALLACE.—“ Improvements in adhesive soles
 “ and heels for boots and shoes, and in apparatus used for pre-
 “ paring and applying the same.”

The only part relative to the present series is contained in the
 following words :—

“ For rasping or cleaning the shoe soles preparatory to apply-
 “ ing the adhesive soles, I form a brush or scraper made by
 “ inserting sharp pointed steel pins into a metal head or wooden
 “ handle similar to a brush.”

[Printed, 6d. No Drawings.]

A.D. 1853, July 23.—N° 1735.

MANBY, CHARLES WILLIAM.—(*Provisional protection only.*)—

“ An improved shaving brush, to be called ‘ the traveller’s patent
“ ‘ shaving brush.’ ”

The “ invention consists of a cylinder ” “ with a brush fitted to
“ one end, the cylinder being capable of containing a quantity of
“ prepared soap.

“ A moveable collet or button is fitted to the interior of the
“ cylinder ; this collet or button can be worked through the
“ cylinder by the action of a screw, which screw can be turned
“ by the operator from the outside.

“ By means of this moveable collet or button and screw, the
“ prepared soap contained within the cylinder is forced through
“ a small aperture in that end of the cylinder to which the brush
“ is attached, and down a small tube leading from the said aperture
“ into the centre of the bundle of hair which forms the
“ brush, thus keeping the brush supplied with soap without the
“ aid of a soap dish.”

[Printed, 4d. No Drawings.]

A.D. 1853, August 10.—N° 1859.

TAYLOR, JOHN GEORGE.—(*Provisional protection only.*)—“ Im-

“ provements in desks, work boxes, dressing cases, tea caddies,
“ and similar articles, and in the arrangements and fittings
“ thereof.”

Amongst numerous other articles, “ shaving and tooth brush
“ and other handles of dressing cases ” are made of “ the ma-
“ terial used in the manufacture of what are technically known
“ as ‘ agate buttons,’ and for which a Patent was obtained in the
“ year 1840 by Mr. Richard Prosser ” [No. 8548]. “ The frame
“ piece or backs and handles of brushes ” are made of the same
material.

[Printed, 4d. No Drawings.]

A.D. 1853, September 8.—N° 2068.

COATE, JAMES. — “ Improvements in tooth, nail, and hair
“ brushes.”

A cement for filling in the grooves in which the bristles are
wired is described. It consists of “ gilders’ whiting or oxide of
“ zinc, or both of them,” the “ finest quick drying copal varnish,”

“ Naples yellow, raw sienna, or yellow ochre and Persian red, each in such proportions as to give the tint or color of the bone “ or ivory,” but the coloring matters may be dispensed with. The materials are rubbed down into a thick paste, and this paste is applied to the back of the brush with a pallet knife. When dry, the superfluous cement is scraped off, the back polished with “ flour glass,” then with whiting on felt cloth, and finished in the usual way.

[Printed, 4d. No Drawings.]

A.D. 1853, September 15.—N^o 2145.

HILLIARD, HARVEY.—(*Provisional protection only*).—“ Im-
“ provements in apparatus for cleaning table cutlery.”

“ This invention relates to various modifications of existing
“ cutlery apparatus, wherein the drum or containing box is made
“ entirely or chiefly of cast metal to avoid the tendency to warp
“ and get out of shape attending those of wood as hitherto con-
“ structed. It is made in two halves, hinged or otherwise held
“ together, so as to open out easily and expose the inner parts,
“ and allow of these being taken out or put in entire.

“ The polishing wheels are also of cast metal, and their sur-
“ faces are grooved and perforated for the attachment of the
“ leather or bristles, or other cleansing surface. These bristles
“ or cleansers are secured by wires passing through the perfora-
“ tions to the back, in the manner of the leaves of a book, each
“ two adjacent lines of bristle or cleansing surface being formed
“ of one piece of leather folded down. It is proposed under one
“ modification to make the metal surfaces to which the bristles
“ are attached in separate segmental pieces, connected in such a
“ manner to the polishing wheels as to yield slightly to the
“ knife whilst they are pressed forward by springs. The object
“ of this is to provide for the unequal thickness of the back and
“ edge, and heel and point of the knife, so that the thicker parts
“ may not be worn away too rapidly.”

“ Metallic sharpening surfaces ” may be placed alternately with
the cleansers in the wheels. At one side of the drum is a knife
sharpeners made of steel discs, these discs being a little larger
than usual. The drum may also “ contain revolving brushes for
“ cleaning forks and the shoulders of knives.”

[Printed, 4d. No Drawings.]

A.D. 1853, September 17.—N° 2165.

LITHERLAND, RICHARD, and PICTON, THOMAS.—(*Provisional protection only.*)—"An improved mode of manufacturing brushes, and in machinery for applying the same to the purposes of polishing and cleaning."

In the stock are cut "long undercut grooves," and the bristles are secured in them by pieces of wood, shaped to correspond with the grooves. Instead of one piece, several may be used. The central piece may be broader at bottom than at top, so as to hold the rest in. The pieces are driven in from the end of the groove. When the bristles are worn out by use, they can be supplied by new ones, so that the stock may be used more than once.

"The improvement in the machinery for applying these brushes to the purposes of polishing and cleansing consists of a mandril or axle revolving through two uprights, headstocks, or pedestals, and extending on each side beyond the supports for the purpose of fixing suitably formed brushes upon the ends thereof. This double or two ended mandril is caused to revolve at a high speed by motive power communicated to a pulley or pinion wheel fixed on the axle or mandril at a point between the two uprights.

"The articles to be cleaned or polished are held against the brushes fixed on the ends of the axle during the time they are caused to revolve, which may be conveniently done by the motion used in a common foot lathe."

[Printed, 4d. No Drawings.]

A.D. 1853, October 12.—N° 2344. (* *)

WAITHMAN, ROBERT WILLIAM.—"Improvements in apparatus for applying paint, varnish, and other liquid substances, and also for cleaning carriages, ships, roadways, houses, and other buildings."

The invention consists in so constructing brushes, mops, brooms, or other such apparatus that paint, varnish, or other such substance, or water or other cleansing matters, may be conveyed to them from any convenient reservoir. This reservoir may be in the handle or other part of the apparatus for paint, etc., but the method to be generally adopted for cleansing is to connect the article by means of a flexible hose with a tank or other reservoir containing water, etc., or with a pumping apparatus. By this

means the brush is always kept clean, and a pail to contain water for any washing or cleansing operation, for which the brush is to be employed, is dispensed with.

[Printed, 6d. Drawing.]

A.D. 1853, October 14.—N° 2368.

DAVY, MARY ANN, and TAYLOR, ANN.—“Improvements in
“ the mechanical application of brushes.”

The “improvements relate to giving a rotatory, horizontal, vertical, or inclined motion in any required direction to brushes of
“ different forms and sizes, to be employed in operating flesh
“ brushes, and for lessening the labour of other operations usually
“ performed by hand.”

Brushes “of a flat circular form,” may be rotated by “the
“ common jack movement.” A strong spring works within a barrel, from the axis of which motion is communicated to the brush. Or, brushes are fixed on an endless band, and it passes over drums which are rotated in a similar way.

Also an oscillating frame is fixed to the back of a chair. This frame carries brushes which may be “made flexible.” It is actuating by a lever, or by rocking the chair. The lever may be worked by a treadle. Similar brushes may be attached so as to act on the limbs of the patient.

[Printed, 4d. No Drawings.]

A.D. 1853, December 1.—N° 2799.

JOHNSON, JOHN HENRY.—(*A communication from Charles Eugene François Guibal.*)—“Applications of vulcanized india-rubber.”

“The invention consists of the application of vulcanized india-rubber to the manufacture of curry combs, brushes of all kinds,
“ and artificial cloth. The caoutchouc is mixed with a composition of sulphur and oxyde of zinc, and formed into a sheet,
“ which is then moulded by suitable moulds into the form
“ required, being heated by steam stoves or other means. In
“ making tooth and other brushes, the bristles or hairs are
“ replaced by the employment of a series of tufts of india-rubber
“ ~~formed like bristles.~~ These tufts are inserted into the foundation or back of the brush when in the mould, such back being

“ composed also of india-rubber, and attached to any suitable holder. By this means the tufts are securely held in the back since they are entirely incorporated with it.”

[Printed, 6d. Drawing.]

1854.

A.D. 1854, February 6.—N° 287.

VANDER MEERE, AUGUSTE LOUIS NICOLAS COMTE.—(*A communication*).—“ The manufacture of artificial whalebone, or a substance capable of being employed as a substitute for whalebone and tortoiseshell.”

The artificial whalebone is made from horn. “ The horns are cleansed from grease, and split, opened out, and flattened in the ordinary manner, and they are then immersed for several days in a bath composed of five parts by weight of glycerine and one hundred parts by weight of water.” Or water alone may be used, allowed to stand and become putrid. Afterwards the horn is steeped in another bath of three quarts of nitric acid, two quarts of pyroligneous acid, twelve pounds of tannin, five pounds of bitartrate of potash, and five pounds of sulphate of zinc, mixed with twenty-five gallons of water. Vinegar may be substituted for the pyroligneous acid, and white wine for the bitartrate of potash. Instead of this bath, the horn may be immersed in a bath of water containing animal matter.

Or, the tips of the horns are cut off, and they are treated as above before being split. After being soaked, they are cleaned and divided in two. They are then heated over a fire, opened, and pressed between heated iron plates. Cold water is thrown on the plates before taking them out. Small pieces of horn may be united by being heated and pressed together. The horn may be stained black by a dye of logwood, fustic, and sulphate of iron boiled in water. Amongst other uses, the horn may be cut into threads for making brooms and brushes.

[Printed, 4d. No Drawings.]

A.D. 1854, February 20.—N° 403.

HILLIARD, HARVEY.—“ Improvements in apparatus for cleaning and sharpening table cutlery.”

The invention relates to modifications of knife cleaners, in which the cleansing discs are of metal. The box is made in two halves, hinged so as to afford ready access to the interior. The discs have radial ribs cast on them, and the "cleansing surfaces" are attached to holes in these ribs, or in the discs themselves. They are formed of small pieces of leather strung on wire. Some of them project so as to rest against the surface of the wheel, and allow a little play to the others which stand out from the wheel. Or the cleaners may be attached to separate metal pieces, and these pieces may be attached to the wheel by springs. The cleansers are faced with bristles or other materials, or a combination of various materials. The dippers for distributing powder to the cleansers are cast on the wheel. The discs are kept in contact by springs, or washers may be used, the number of which may be increased as the friction surfaces become worn. "The discs are fitted " on one spindle, with feathers entering grooves on the latter," or by means of a pin through the axle. The holes for the knife blades are formed in a straight piece of gutta-percha, and this is afterwards bent round the machine. Straps of leather may be fitted round the inside of the drum, having slits in them to permit the blade of the knife to pass, but not the shoulder. "At " one side of the drum is placed a knife sharpener made of steel " discs or segments," rather larger than usual. A circular brush may be fixed outside one of the discs within the drum, to clean forks and the shoulders of knives.

[Printed, 1s. Drawing.]

A.D. 1854, March 6.—N° 533.

BARR, DAVID. — "An improved combined hair brush and " comb."

" The brush and comb are constructed in the usual way, and " arranged or combined so as to form a cavity or receptacle for " oil, pomatum, hair dye, etc., which are compressed through a " small crevice, or number of orifices, by means of a lever or " metal plate placed on the top of the pomatum or other solid " compounds or preparation for the hair; a small piece of " sponge being inserted and saturated, when fluids such as oil, " hair dye, etc., are required, the filled sponge being made to dis- " charge itself gradually on the hair by the use of the same lever " or metal plate."

The drawing shows a combined brush and comb. The part to which the brush is fixed lifts up as a sort of lid, and the compressing plate has a small lever to be actuated by the hand to press out the liquid.

[Printed, 6d. Drawing.]

A.D. 1854, April 1.—N^o 753.

SMITH, WILLIAM.—(*Provisional protection only.*)—"An improved mop."

"This invention consists in a new and peculiar mode of constructing mops, whereby they are rendered more durable than heretofore." This is effected "by so arranging, disposing, and attaching the absorbing material of which the mop is to be made, as that both ends of each separate piece of such said material are affixed to an iron spike to which the handle is also affixed, thereby forming a series of loops, which are considerably more durable than when the ends of the material are cut, as commonly practised in manufacturing mops."

[Printed, 4d. No Drawings.]

A.D. 1854, May 16.—N^o 1089.

DURANT, ANGUISH HONOUR AUGUSTUS.—"Improvements in apparatus for sweeping chimnies and flues, and for extinguishing fires therein."

Improvements upon a former patent granted to the inventor and Sir F. Desanges, which are thus described:—"In place of using tubes to guide the stems or rods of the brushes, I now employ two kinds of frames, one with holes for receiving the rods or stems of the brushes, and for them to slide in, and levers with flat or triangular springs to act under the levers, with or without the spiral springs formerly used. I also apply friction rollers to the brushes and frame, as well as to the levers, to facilitate the movement of the apparatus through a chimney or flue, and the rods or stems of the brushes are retained in the frame by bolts, rivets, or screws. The levers which carry the brushes slide over or are parallel with each other at one of their ends, and they each move on an axis at their other ends, and they are made with shoulders and covers at the top and bottom of the second or other frame, acting in its passage in the same way as the separate bars of protection of brushes under cover

“ when necessary to protect them from blows. The brushes when
 “ expanded are square, but when contracted they retire into
 “ the framework, and are thus protected together with the
 “ rollers. In place of the brushes being each on two levers
 “ sliding at their ends on each other, they may be mounted on
 “ single lever arms, formed at their inner ends with excentric
 “ surfaces acting on flat springs, the arms or levers being pre-
 “ vented moving sideways by rollers or otherwise. At the bottom
 “ of the head, and in the parts of the rods, in order to get
 “ flexibility or bending, I apply a joint, composed of two spheres
 “ joined together, and working in hollow cavities or framework
 “ made in the ends of the rods or parts, and these parts are
 “ connected together by chains and springs; or, in place of
 “ such joint, I employ two axes to one end of one part of the
 “ rod, and slits in the other to receive such axes, together with
 “ springs by which the parts of the rods are made to bend in
 “ four directions.”

[Printed, 10d. Drawing.]

A.D. 1854, May 19.—N^o 1119.

FEUILLATRE, ETIENNE JACQUES. — (*Provisional protection only.*)—“ An improved apparatus for cleansing the wheels of car-
 “ riages.”

The inventor uses “ a trough of a segmental form with flat
 “ sides, into which the lower part of the wheel may be immersed.
 “ The trough is covered on the interior with brushes. This
 “ trough is passed under the wheel which is raised up for the pur-
 “ pose, and the wheel is then allowed to come in contact with the
 “ brushes. Water is poured in the trough, and the wheel is
 “ turned round and round; the tire and felloes of the wheel and
 “ part of the spokes are thus rapidly cleansed by the brushes.
 “ The nave and the adjoining part of the spokes are cleansed by
 “ a hand brush in the usual manner. An aperture for drawing
 “ off the water may be made at the bottom of the trough, and
 “ closed by a valve or otherwise.”

[Printed, 4d. No Drawings.]

A.D. 1854, June 20.—N^o 1348. (* *)

MONZANI, WILLOUGHBY THEOBALD.—(*Letters Patent void for want of final Specification.*)—“ An improvement in brushes
 “ and brooms.”

It is proposed to attach vulcanized india-rubber "as an elastic material on those parts of brushes and brooms which in use are liable to be moved or struck against skirtings and other parts of buildings and places or things which are to be dusted or cleansed thereby. By which application of vulcanized india rubber, noise will be prevented in the use of such brushes and brooms, and the skirtings and other parts of buildings, places, or things will not be injured by the hard parts of brushes and brooms as heretofore."

[Printed, 4d. No Drawings.]

A.D. 1854, July 4.—N^o 1459.

TIFFANY, CHRISTOPHER THOMAS.—"An improvement in the manufacture of brushes used in gig mills and machinery for brushing piled fabrics."

Brazilian grass is employed instead of or in combination with the materials generally used. The grass is first cut into lengths; the fibres are then drawn through the teeth of a brush maker's comb in the usual manner, "by which the thin, weak, and broken fibres are separated." Tufts of the fibres are then fixed into wooden backs to form the brushes.

[Printed, 4d. No Drawings.]

A.D. 1854, July 27.—N^o 1653. (* *)

CAULFIELD, WILLIAM BEARE.—(*Complete Specification, but no Letters Patent.*)—"Brushes to be used in cleaning the small tubes of steam boilers."

In manufacturing these brushes two circular plates of metal of equal dimensions are perforated with a number of corresponding holes, and fitted to receive a spindle passing through their centres. In the holes of one plate the rods or ribs are riveted, the other end freely traverses within the opposite holes, which are widened to allow them to slide up and down. The wire being cut into lengths, is laid in small bunches in the spaces between the ribs, and may radiate so as to give a circular, oval, or other form to the brush. The spindle is provided with a shoulder and a screw nut, between which the wire is powerfully compressed, and retained in its position. By relaxing the screw, the wire can be removed and replenished.

[Printed, 8d. Drawing.]

A.D. 1854, August 17.—N° 1799. (* *)

GRIFFITHS, ROBERT.—(*Provisional protection only.*)—"An improvement in the manufacture of brushes."

It consists in "employing wires, set in india rubber or other suitable substance, as when making cards for carding cotton and other fibres, and supporting the wires with a surrounding edge of bristles, fibres of the cocoa-nut, or other matters used in making brushes, by which the middle or central portion of a brush will consist, or for the most part consist, of wire."

[Printed, 4d. No Drawings.]

A.D. 1854, September 26.—N° 2071.

SINCLAIR, the Honourable JAMES, commonly called Lord **BERRIEDALE.**—"Improvements in treating, cleaning, and ornamenting paper and other surfaces."

Colour is dropped from a hopper on to the fabric which has been previously printed with a pattern in adhesive matter. It is distributed over the surface by a rotating brush. The superfluous colour is cleared off by the fabric being drawn under a fixed brush. The process is finished by the fabric being passed under rollers, fitted with radial strips of caoutchouc, which clear away any remaining loose colour. The other parts of the process are in no way connected with the series.

[Printed, 1s. 4d. Drawings.]

A.D. 1854, October 6.—N° 2150.

BRITTEN, JOHN.—(*Provisional protection only.*)—"A new or improved machine for sweeping or cleaning chimnies."

A rod terminating in a guide roller, carries near its end a horizontal brush. From a point below this brush spring "elastic stems," carrying "elastic brushes." The machine is to be pushed up the chimney by a rod, and drawn down by a chain. There is hardly any description beyond the explanatory references to the drawing.

[Printed, 6d. Drawing.]

A.D. 1854, October 14.—N° 2203. (* *)

MONZANI, LOUISA. — (*A communication from Willoughby Theobald Monzani.*)—"An improvement in brushes and brooms."

It consists "in the application of vulcanized india rubber as an elastic material on those parts of brushes and brooms,

" which in use are liable to be moved or struck against skirt-ings, and other parts of buildings and places or things which are to be dusted or cleansed thereby," " by which application of vulcanized india-rubber noise will be prevented in the use of such brushes and brooms, and the skirtings and other parts of buildings, places, or things will not be injured by the hard parts of brushes and brooms, as heretofore."

[Printed, 6d. Drawing.]

A.D. 1854, October 14.—N° 2204.

YOUNG, JAMES HADDEN.—" Improvements in brooms or brushing apparatus."

The inventor says :—

" The invention consists of improvements in brooms or brushing apparatus for which Letters Patent were granted to me on the fifteenth day of January, one thousand eight hundred and fifty three. The materials of which the brush is composed, instead of being fixed to a wooden axis, are bound together by wire, twisted together. To the centre of this axis a small pulley is fixed over which a band is made to pass, connecting it with a wheel on the outside of the box. A metal pan is hinged to the bottom of the box. The handle of the apparatus is made to pivot on the box."

[Printed, 8d. Drawing.]

A.D. 1854, October 17.—N° 2215.

CHILD, WILLIAM HENRY. — (*Provisional protection only.*)—

" Improvements in the manufacture and construction of brushes."

" Hair of various degrees of strength or substance" is used in the same brush. The fine and coarse hair is arranged in brushes either in alternate rows or otherwise. The bundles of coarse hair are a little longer than those of the finer. Brush handles are made of several pieces, so that they may be " readily separated." Brushes are made to be used " with fluid or semi-fluid ; the said fluid being emitted or driven out through the centre or other suitable part." Carpet brooms are made " of the usual materials, by binding it around the wooden block by leather bands, which requires only short material."

[Printed, 4d. No Drawings.]

A.D. 1854, December 16.—N° 2657.

MARTIN, JULIANA.—“ A safety apparatus for effectually cleaning windows from the inside of a room.”

“ The object of this invention is to enable a person to clean the outer sides of windows without incurring the danger arising from sitting or standing upon the window sill. The apparatus consists of a wooden or metal rod or stick of sufficient length to reach the upper part of the outside of the window when the servant is standing upon the floor of the room: the stick or rod may be made in two or more pieces, and joined by screws. At the top of the rod is a projecting piece of metal fitted with an internal screw; into this is screwed a piece of wood upon which the leather or cloth for cleaning the window is tied or fastened. A brush may also be screwed on the rod in place of the wood, and used for cleaning the paint work of the window.”

[Printed, 6d. Drawing.]

1855.

A.D. 1855, February 1.—N° 246.

JECKS, ISAAC.—“ A machine for sweeping grass or weeds from lawns or fields, and depositing the same into a box or other receptacle.”

The machine, “ which is supported on a pair of wheels, consists of a circular case, in which is placed a wire drum, with the wires placed longitudinally, about two inches apart, laced to or held by a spiral wire inside the drum. The circular case and wire drum are supported on brackets resting on the axle of the wheels, and a spur wheel attached to one of the wheels gears into a pinion fixed to the axis of the wire drum. The bottom of the case is left open to allow the wire drum to come in contact with the grass or wheel, and in front of the case another opening communicates with the box or suitably shaped receptacle for the grass, which receptacle can be attached to or detached from the machine, as required. Four boards are so placed longitudinally within the wire drum as to form the wings of a fan, the circular case forming the fan box. When the machine is set in motion, by being propelled from behind, the

“ spur wheel fixed on one of the carriage wheels will communicate motion to the pinion on the axis of the wire drum, and made to revolve at an increased velocity, whereby the grass or weed is caused to enter through the aperture at the bottom of the circular case, and, by means of the fan or blower, thrown out of the aperture in the front of the case and into the receiver. The pinion gearing into the spur wheel is moveable on the axis of the wire drum, and can be taken out of the gear when the machine is not required to operate.”

[Printed, 8d. Drawings.]

A.D. 1855, February 15.—N^o 341. (* *)

MOLESWORTH, ROBERT.—“Improvements in the construction of brushes.” These are, making “the handle and block of the brush of one piece of wood,” etc., and making the part “of the block next the handle cylindrical, while the part to which the bristles are attached is a truncated cone with the base towards the outer or brush end;” “for the purpose of more effectually binding the bristles to the block,” a casing, which may be of metal, wood, leather, or gutta percha, made smaller at the brush end than where it is attached to the block, is to be “passed over the bristles and attached to the cylindrical portion of the block by screws or otherwise.”

[Printed, 6d. Drawing.]

A.D. 1855, February 16.—N^o 349.

ABBOTT, WILLIAM.—(*Provisional protection only.*)—“A boot and shoe cleaning machine.”

“The machine is formed by a framework of wood, iron, or any other kind of material, supporting a spindle with circular brushes formed of any kind of hair in a wood or iron block,” and a small cog-wheel or wheel for a hand or gutt, and a second spindle for a handle with a larger cog-wheel,” “so that the motion of the brushes would be increased.” The brushes, as shown in the drawings, are set a little apart, with the bristles spreading out so as to touch.

[Printed, 8d. Drawing.]

A.D. 1855, February 26.—N^o 422.

NASH, THOMAS.—“Improvements in painting brushes, applicable also to other brushes and brooms.”

"This invention consists in the adaptation to painting brushes
 " of a binding made of a webbing of flax, hemp, or other material,
 " of strength and pliability suited for the purpose, or of flax,
 " hemp, or other suitable material made into webbing or cloth,
 " and then formed into a band for binding together the bristles,
 " hair, &c. of the brush, and secured to the handle of the brush
 " by metal bands, with pins, rivets, or fasteners, passing through
 " the same.

"This binding may be combined with string, wire, or other
 " binding if desired. The above, although principally adapted
 " for painting brushes, is useful for other descriptions of brushes,
 " and may be applied to brooms.

"The backs of scrubbing shoe and other brushes" may be
 covered with "webbing instead of the usual veneers."

The webbing may be woven in an endless band, or may be
 formed into one by joining the ends.

[Printed, 4d. No Drawings.]

A.D. 1855, March 14.—N° 568.

NEALE, ROBERT.—"Improvements in copper and other plate
 " printing."

In order to clean certain parts of the machine which are used
 to remove superfluous ink from the plate, the inventor employs
 endless bands covered with brushes, and a revolving brush of
 wire made with alternate rows of wire, bristles, and spaces.

[Printed, 10d. Drawings.]

A.D. 1855, March 26.—N° 661.

BRITTEN, JOHN.—"A new or improved machine for sweeping
 " or cleaning chimnies."

A pole surmounted by a guide roller carries a horizontal brush
 near its top. At a point lower down brushes are mounted on the
 ends of springs which have a tendency to press the brushes out-
 ward. The springs are mounted on a ring about the end, so
 that they slide upon it. The brushes are kept near the main
 stem by being joined with cords, which pass through rings in a
 runner which slides on the pole for a short distance between
 bosses. When the brushes meet with any obstruction, the rod
passes a little way on, the bars meet the runner, and this carries
on the cord, draws the brushes together, and so enables them to
pass the obstacle. By means of a tooth and a notch the rod may

be made to engage in the runner so as to hoist it round, and tighten the cord still further. The rod may also be turned round without engaging in the runner, to enable the roller at top to pass an obstacle more easily. The brushes are angular, and are attached to plates fixed to the ends of the spring.

[Printed, *sd.* Drawings.]

A.D. 1855, April 19.—N° 875.

JOHNSON, JOHN HENRY.—(*A communication.*)—"Improve-ments in the manufacture of articles of hard india-rubber or gutta percha, or compounds thereof, and in coating or covering articles with the like materials.

Amongst the numerous articles enumerated for which the method of manufacture is adapted, "handles for brushes" are mentioned. Respecting the preparation of the india-rubber, gutta percha, and compounds thereof, and the mode of moulding, reference is made to the Specifications of T. Hancock, A.D. 1843, No. 9952; T. Hancock, A.D. 1846, No. 11,135; C. Hancock, A.D. 1846, No. 11,032; Brockeden and Hancock, A.D. 1846, No. 11,455; W. Johnson, A.D. 1854, No. 1819; J. H. Johnson, A.D. 1854, No. 752; J. H. Johnson, A.D. 1855, No. 506; and J. H. Johnson, A.D. 1855, No. 855. The articles are moulded in a soft state, and subjected to a high degree of heat in steam heaters, or in a sulphur bath. The moulds may be of plaster, but "porcelain, glass, metal, or gutta percha" is preferred. The heating process may take place while the article is in the mould, or after it has been removed from it. During the process of vulcanising, the article may be embedded in magnesia, which will allow it to leave the mould quite black. The articles may sometimes be coloured by spreading in the moulds "the dust of hard india-rubber which contains coloring matter."

[Printed, *4d.* No Drawings.]

A.D. 1855, May 9.—N° 1037.

GEDGE, JOHN.—(*A communication from J. N. Truchelut.*)—"Provisional protection only."—"An apparatus for cleansing rooms or other spaces."

The object of the apparatus is to avoid the necessity of the operator kneeling when scrubbing a floor. "It will consist on one side of a brush with a handle of sufficient length; on the other the absorber will be made, consisting of, first, a back of

“ metal; secondly, of three cylinders and a roller of wood; third, of a piece of woollen stuff; and fourthly, of a metallic receiver. On the cylinders will be placed the woollen cloth; the centre cylinder will be a fixture; the outer rolling, and capable of adaption to the corners or inequalities of the surface of the area. By pressure on the floor, after the brush has done its office, the cloth will sponge up the water and pass it into the receiver, which is intended to hold about from two to three pints of water, and can be emptied at pleasure.”

[Printed, 4d. No Drawings.]

A.D. 1855, July 20.—N° 1644.

CONNER, GEORGE.—“ An improvement in the manufacture of brushes.”

The invention relates to the use of the fibre of the “ Mexican grass ” or “ agave Americana ” for brushes. The description of the process of manufacture is given by the inventor as follows :—

“ In order to remove extraneous matters from the useful fibre which I propose to employ for the aforesaid purposes, I cut the plant into pieces of the required length, and having loosened the fibres by rolling, crushing, or other convenient means, I dress the fibres by means of a comb in the ordinary manner of dressing other vegetable fibres or bristles, and by this means I remove all the short useless waste and other extraneous matters from the useful fibres, which I then bake in an oven, in order to straighten the fibres, which may, if required, be dyed of any suitable colour by immersion in any suitable dye liquor. When dry I submit the fibres to the operation of heckles in the same manner as is pursued in treating horsehair, and the result will be a strong, firm, and stiff horny fibre, somewhat resembling coarse horsehair. This strong, horny vegetable fibre may then, according to its quality, be used in the manufacture of brushes of various kinds, and may be employed either alone or mixed with hogs’ bristles of an inferior quality, or with other fibres.”

[Printed, 4d. No Drawings.]

A.D. 1855, August 25.—N° 1931.

LE FRANÇOIS, HONORÉ.—(*Provisional protection only.*)—

“ An improved apparatus for cleaning stew pans and other similar culinary utensils.”

The invention "consists of an upright frame or stand, furnished with a vice or similar contrivance, between the jaws of which a stew pan or other similar culinary utensil can be firmly held, so as to be acted upon by a series of revolving brushes, which work upon pivot centres on the said frame or stand in such a manner as to be brought to bear upon the outer and inner surfaces of the said pan at the same time. The apparatus, which is furnished with the ordinary winch handle for giving motion to the same, has also a suitable arrangement for regulating and extending the range of the said brushes to any extent required by the employment of a common rack and pinion, the effect of which enables the brushes to be moved backwards and forwards, so as to suit any sized pan."

[Printed, 4d. No Drawings.]

A.D. 1855, September 8.—N° 2040.

DURANT, ANGUISH HONOUR AUGUSTUS.—"Improvements in apparatus for sweeping and cleaning chimnies."

Four triangular iron plates are riveted together at right angles to one another along the same line, so as to form an apparatus of rectangular cross section and of rhomboidal outline. To the top corner is attached a guide roller, to the bottom a pushing rod, while to the four projecting corners of the plates brushes are attached, generally segmental in form and with radiating bristles, which spread out and meet at the corners, so as to form a complete square. The guide roller and the pushing rod enter into sockets in the sweeper, and are attached by having an india-rubber ring which passes over a pin in each part. By this means a sort of universal joint is made. To give elasticity to the brushes, they may be mounted on rods which slide on the plates, and have their ends abutting upon blocks of india-rubber.

To give further elasticity to the brushes, a skeleton framework like the above is made; the rods which carry the brushes are forked, and work on a pin on the frame; their inner ends are hooked, and take into india-rubber hooks which are hung over hooks fixed to a central rod. The brushes by this means are allowed some play up and down. The rings which hold the brush in the down stroke are less elastic than those pressed upon in the up stroke.

Rollers may be attached to any part of the framework to assist its movement.

[Printed, 8d. Drawing.]

A.D. 1855, October 6.—N° 2236.

WASHINGTON, JAMES.—“Improvements in apparatus for sweeping chimneys or flues.”

“These improvements consist, firstly, in obtaining expansion and contraction at the head or brush part of apparatus for sweeping chimneys or flues, by a mode or method nearly similar to that which is adopted for effecting the opening and closing of ordinary umbrellas and parasols, by ribs and stretchers; but differs therefrom, inasmuch as in my improved apparatus for sweeping chimneys and flues there are two stretchers (answering to the rib and stretcher aforesaid) jointed together, and having whalebones or brushes secured to the points of junction or thereabouts, the extremities of which stretchers may be free to move in slide grooves or guides (or free to move with sliding pieces to which they might be connected), and connected to springs to secure, under the variations of pressure that occur in use, the expansion and contraction of the brush or brushes, whereby the stretchers in action will be caused to form a greater or less angle according to the variations of pressure, and whereby the brushes will be caused to protrude considerably from the rod or centre, filling the chimney or flue, and effectually cleansing the same, and yet may be so much compressed as to pass into and through a common chimney pot.

“Secondly, these improvements consist in connecting or jointing together the parts or the canes or rods to which the head or brush is attached, by means of a joint, which is simply a nut, having a left-handed thread which secures, fastens, or ‘locks’ the common right-hand thread of the ordinary joint, whereby the chance of the joints becoming unscrewed in use in a chimney or flue is prevented.”

[Printed, 10d. Drawing.]

A.D. 1855, October 17.—N° 2328.

AYCKBOURN, FREDERICK.—(*Provisional protection only.*)—
“An improved apparatus for brushing and cleaning of boots, shoes, and trowsers.”

For cleaning boots and shoes a framework is employed "made of iron, wood, or other suitable material which supports a spindle on which are placed one or more sets of concave brushes" "made of any sort of hair." "A beveled pulley is placed at one end of the spindle, and the necessary motion for work obtained by an endless band from the fly wheel of a steam engine passing round the pulley. If this brush spindle is placed near the ground, persons may clean their boots or shoes whilst in wear. A trough containing blacking is placed contiguously to each blacking brush, from which the blacking brush is wetted by means of a small feed brush; or the trough is partly filled with water, with which the blacking brush is wetted by means of the feed brush; and a small flat box with a handle holding a square of paste blacking inside it, having one side open, is held against the blacking brush whilst revolving, until a sufficient quantity is rubbed off." The motion may also be obtained from a fly wheel "placed on a stand at a small distance from the machine, having an endless band running on its periphery and round that of the pulley on the brush spindle, and turned by an ordinary handle; or the framework may have a small fly wheel fixed at one end of a spindle, having a crank in the centre of it and treadle attached;" "this spindle traverses the machine underneath the brush spindle; an endless band passes round the fly wheel and pulley above it, and motion is obtained by foot pressure.

"For brushing trowsers, the brush spindle is furnished with an additional concave brush," and "a cylindrical tube or wicker, cane, or other suitable material" is "placed inside the leg of the trowsers for the purpose of keeping the same extended."

[Printed, sd. Drawings.]

A.D. 1855, November 10.—N° 2528.

PIGGOTT, WILLIAM PETER.—(*Provisional protection only.*)—

"Improvements in galvanic, electric, and electro-magnetic apparatus, and in the mode of applying the same as a curative and remedial agent."

The first part of this invention relates to the construction of a brush "consisting of a mixture of bristles and metallic wires or

“ plates,” or having some of the bristles coated with metal “ by electric deposition.” In the back is fixed a battery, with which the wires, etc. are placed in communication. The remainder of the invention relates to a galvanic bath.

[Printed, 4d. No Drawings.]

A.D. 1855, November 15.—N° 2576.

HINKS, JOSEPH LESTER.—(*Provisional protection only.*) —
“ Improvements in brushes.”

The handle of a hearth or other brush is fixed to the head near one end at an obtuse angle (about 135°) with the head. The handle may also be fixed in the middle of the head, and inclined, or vertically at the end.

[Printed, 4d. No Drawings.]

A.D. 1855, November 19.—N° 2601.

PRATT, JOSIAH, and RADCLIFFE, THOMAS.—“ Improve-
ments in the manufacture of brushes.”

“ The handle which extends beyond the end of the brush, instead of being in a line with the same, is cranked or raised up, either in a curved form or otherwise, so as to give a firm hold and more power, and at the same time to keep the knuckles clear from the article being brushed.

“ Another improvement applicable to brushes generally is to make the bristles (or other material of which the brush is made) longer in the middle than at the ends.” “ In boot and shoe brushes the handle is placed at one end, and raised or cranked, as above described. The principal surface of the brush is set with bristles, of the quality employed for glossing or polishing; and at the back thereof at the end furthest from the handle, is a small oval or circular brush of the quality usually employed for laying on the blacking. By placing a small triangular block at the back of the brush, a third brush for cleaning off the dirt may be also added. The black-lead brush is formed similar to the first-named shoe brush; the principal surface of the brush being for polishing and the small brush at the back being for laying on or applying the black lead.

“ Another improved boot and shoe brush is manufactured by constructing the body thereof in the form of a prism, each face

“ being furnished with a brush of different quality, namely, one
 “ for brushing off the dirt, one for laying on the blacking, and
 “ another for polishing. The handle is formed at one end, and may
 “ either be in a line with the body of the brush, or may be
 “ cranked or curved upwards from the polishing surface of the
 “ brush, that being the surface most used.”

[Printed, 10d. Drawing.]

A.D. 1855, December 17.—N^o 2846.

STEWART, HENRY,—“ A machine or apparatus for cleaning
 “ and polishing forks, spoons, and other like curved articles.”

Motion is given from a handle by toothed wheels to a vertical axis working in a cylindrical case. On this axis are strung frames carrying brushes. The brushes are mounted on springs, so as to be continually driven outwards towards the sides of the case. There are openings in the case, through which the articles to be cleaned are introduced, and an external case fits over the interior one in such a manner as to hold the articles fast. Instead of brushes, discs covered with buff leather may be used; or both brushes and discs may be employed. The brushes may be concave, or convex, or of various shapes.

[Printed, 10d. Drawing.]

1856.

A.D. 1856, January 4.—N^o 35.

KEY, THOMAS.—(*Provisional protection only.*)—“ Improved knife-
 “ cleaning machine.”

A “ circular or roller brush double the length of the knife
 “ blades ” is mounted on a spindle. “ Round the surface ” of
 the brush is placed “ a thin sheet of iron ” encircled by two straps.
 “ It is then fixed in a box or case, the two ends of the spindle
 “ passing through, and being supported by the ends thereof, in
 “ which are a number of apertures describing a circle, the dia-
 “ meters of which are equal to the diameter of the brush. Through
 “ these apertures the knives are passed, and the blades pass
 “ between the surface of the brush and the sheet of iron.” The

brush is rotated by a handle on the spindle. "A few inches from each end of the box" is fixed "a piece of wood similar in form and area to the ends, thus forming double ends to the box, for the better support of the spindle, and also for keeping the knives fixed." A small box above holds polishing material; which passes through to the brush.

[Printed, 4d. No Drawings.]

A.D. 1856, January 29.—N^o 244.

WALTON, JOSEPH FOWELL, and LE FRANÇOIS, HONORÉ.
—"Improvements in cleaning forks, spoons, stew-pans, and other culinary utensils."

"The articles to be cleaned are placed in drums or cylinders containing suitably formed brushes, which revolve with the cylinders or drums, the articles to be cleaned being held stationary, while the cylinders or drums and brushes revolve. The cylinders or drums are mounted on an axis or on axes, and motion is given thereto by means of a winch handle or by a crank. Those drums or cylinders used for cleaning silver or plated forks and spoons, and those used for cleaning metal forks are similar in construction, but the brushes of those used for cleaning steel forks are by preference composed of coarser hair or bristles than those used for silver or plated forks, and also instead of using whitening or powders, rough bath brick dust, sand, or emery would be preferable. For cleansing stew pans and other culinary utensils, the brushes are so mounted, that some of the brushes are caused to cleanse the inside, while others are caused to act upon the exterior or outside thereof simultaneously, and in order that the machine may be capable of cleansing vessels of different dimensions, the brushes are made and mounted so that they may be made to approach towards or recede from each other by means of racks and pinions, or by screws or wedges in lieu thereof. Such articles as spoons, forks, &c. are placed in openings suitably formed to receive them on discs or racks, which are prevented from revolving with the drums or cylinders, by means of pins or screws or arms carried by the framing entering therein; each cylinder has an opening provided with a close cover where cleansing powder may be introduced. The drums or cylinders or discs for the different purposes herein mentioned may be all mounted on one axis and

“ form one machine, or each one may be mounted separately, and
“ be complete in itself and independent of the other. The axes may
“ be either driven at once by a winch handle or crank axis, or
“ toothed wheels or fly wheel may be employed in such cases
“ where extra speed or power be required.”

[Printed, 104. Drawing.]

A.D. 1856, February 1.—N^o 272.

KER, MATTHEW.—“ A machine for sweeping carpeted and
“ other floors.”

“ A cylindrical broom is formed by inserting into a roller of
“ the required size hair or other suitable material, so as either to
“ radiate directly from the centre or fixed obliquely. On the
“ middle of the roller a pulley is fixed, by which the broom is
“ turned; the broom is then hung on centres in a wood or metal
“ case, which is either open or closed in front, and partly open
“ at the bottom. Behind the broom a flap is hung on centres
“ fixed into the sides of the case; the flap rests with its lower
“ edge on the floor, and may be made either in one piece or in
“ several, to suit the inequalities of the ground; behind and
“ partly under the flap is a drawer for the reception of the dust.
“ Two small wheels are fixed in the case in order that it may roll
“ freely. A long handle is attached to the case in such a position
“ that a winch may be fixed near the upper end in a line with
“ the pulley on the broom; a cord or band is then passed over
“ them and through two holes made in the case, so that by
“ turning the winch, the broom is made to revolve and brush the
“ dust up the flap into the drawer. The whole machine may be
“ kept stationary, pulled backward, or pushed forward, quite in-
“ dependent of the revolving of the broom. For the better
“ prevention of dust, arising in rooms containing valuable
“ furniture and ornaments, the case is made to cover the broom
“ within about an inch of the floor, and in the top of it a funnel-
“ shaped hole is made, over which the end of a long flexible tube
“ is fixed connected with a fan bellows, the expelling tube of
“ which is put out of the window or other convenient place, so
“ that while one person works the broom another turns the
“ bellows, and the fine dust which might arise after the machine
“ has passed is drawn up the tube, and expelled from the
“ room.”

[Printed, 64. Drawing.]

A.D. 1856, February 9.—N° 345.

DUNCAN, JOHN WALLACE.—“Improvements in or connected with apparatus for the generation and application of steam for impelling purposes.”

Amongst the inventions mentioned are “mechanical scavengers” for engine boilers. These are of various sorts; one is a hollow metal vessel, shaped like a conical bullet, “the weight being such and so disposed as to tend to keep it in an upright position when immersed in water,” with its point upwards, and of just sufficient quantity to sink it. Projecting vanes of a spiral form are formed on the outside; a wire brush is attached to its bottom, and others at various parts of its exterior. This apparatus is perpetually being raised and let fall by the action of the steam, and by rubbing against the sides and bottom of the boiler, it detaches the matters deposited thereon.

[Printed, 3s. Drawings.]

A.D. 1856, March 4.—N° 546.

POITIERS, EDWARD.—(*Provisional protection only.*)—“The application of a new material or materials for the manufacture of brushes and for other purposes, and for improvements in the manufacture of street scavengers, and similar brooms or brushes.”

The new material is the rib of the leaflet of various palms, which may be stripped off and used instead of bristles, the finer parts for soft brushes and the coarser for hard. The fibres parallel to the rib are also useful for soft brushes. The fibres may be used separately, or mixed with other materials.

Reference is made to a manner of employing the thicker parts of the ribs by which wire or other fastening would be rendered unnecessary; this is “to be hereafter particularly described.”

[Printed, 4d. No Drawings.]

A.D. 1856, March 29.—N° 768.

GARDISSAL, CHARLES DARAND.—(*A communication.*)—“Improvements in machinery for sweeping streets and other ways.”

The frame of the carriage is mounted on two ordinary supporting wheels and a swivel wheel behind. The front wheels have a toothed rim on them by means of which motion is given through

suitable gearing to a reciprocating shaft. This shaft carries a series of brooms which sweep the ground. The mud is swept by them on to an apron, which travels across the carriage to deposit the mud in a line at either side. The brooms are fitted on springs which allow them to yield a little. The gearing for working the travelling apron receives motion from the front wheels. By means of reversing gear the apron may be caused to travel in either direction.

[Printed, 8d. Drawing.]

A.D. 1856, April 2.—N° 800.

SMITH, HENRY.—(*Provisional protection only*).—"Apparatus for cleansing and polishing boots and shoes."

The following is all the description given by the inventor:—

"My invention consists in fixing a brush or brushes upon a shaft, and in communicating rotary motion thereto through wheelwork. I fit the brush or brushes inside a case or covering, and provide spaces or openings for the insertion of the boot or shoe to be cleaned."

[Printed, 4d. No Drawings.]

A.D. 1856, May 1.—N° 1037.

SMITH, AUGUSTUS.—"Treating vegetable fibres in order to fit them for use as a substitute for bristles in paint and other brushes."

The invention "consists in 'flagging' or pointing the ends of vegetable fibres by rough grinding them on a stone, and then finishing them upon a drum covered with glass, sand, or emery cloth, or paper of various degrees of fineness." By this means, it is stated, vegetable fibres may be made as suitable for brushes as animal bristles.

[Printed, 4d. No Drawings.]

A.D. 1856, May 9.—N° 1101.

SIMPSON, GEORGE.—"Improvements in rotary knife cleaning machines."

The improvement consists in pressing the two discs of an ordinary machine against one another by means of a spring, to be applied at the centre or other convenient part of the disc. The drawing shows a method of applying the spring in the centre

of the disc. The axle is made in two pieces, one of which slides within the other by a square telescope joint. The two portions are held together by a spiral spring contained within the inner sliding portion. Bosses upon each portion press against the discs and so force them into contact. The spring may be adjusted by a screw.

[Printed, 8d. Drawing.]

A.D. 1856, May 16.—N° 1162.

HENDERSON, WILLIAM.—“Improvements in the manufacture of brooms.”

“The birch or other material of which a broom consists” is clamped “between frames or plates of metal drawn towards each other and retained together by screws.” The “clamping surfaces” have teeth to assist their hold. They may vary in shape and position, and there may a third plate intermediate between the two others and in the middle of the broom. A wire frame may be fastened at a suitable distance from the head of the brush to regulate its stiffness. Handles may be attached in any convenient manner.

[Printed, 10d. Drawing.]

A.D. 1856, May 17.—N° 1167.

CURWOOD, DAVID.—“An improved apparatus for facilitating the cleaning of knives and forks.”

The “improved apparatus for cleaning knives and forks consists of a flat frame or case in which the handles of the knives or forks are fixed in such position that a number of knives and forks may be fixed in the same plane. The handles are received in parallel recesses placed about half an inch apart and lined with buff leather or other suitable material to grip the handles readily by pressure. A hinged cover having a leather gripping surface is applied to this case, which comes down upon the handles and presses on them by means of a thumb screw, so as to hold the whole number in the case firmly. The whole of the handle of the knife or fork is received in the case, leaving only the blade or prongs up to the shoulder or ferrule exposed, thus protecting the handles from injury and preventing their being soiled. The case is provided with a handle which projects in the opposite direction to that of the blades when fixed

“ therein. The knives when placed in the frame have the flat of
 “ the blades all in the same horizontal plane, in which position
 “ they are placed on a board, on a surface of leather, or other
 “ suitable surface, and there brushed with a brush and emery
 “ powder or other suitable scrubbing material. Having cleaned
 “ one side of the whole number, they are readily inverted by
 “ turning the case upside down, when the other side may be
 “ similarly operated upon.

The brush employed is “ similar to an ordinary grate brush,
 “ but formed partly of hair or bristles and buff or other leather,
 “ either in small pieces projecting as the bristles, or in strips
 “ placed across the brush.” In cleaning knives the brush is
 traversed “ to and fro across the blades; but for forks it may
 “ be necessary to brush across the stems and also in the direction
 “ of the length of the prongs. The holding case may also be
 “ made for cleaning silver forks or knives by adapting the recesses
 “ for the handles to hold the articles, and using a brush and
 “ cleaning material adapted for the purpose.”

[Printed, 10d. Drawing.]

A.D. 1856, June 3.—N° 1321.

FLETCHER, RAYMOND, and FLETCHER, EDWIN.—“Im-
 “ provements in sweeping chimnies or other flues.”

The “ invention consists in the employment of an iron or other
 “ pulley, fixed on the top of a chimney-pot, chimney, or flue, to
 “ which pulley is appended a chain which descends to the fire-
 “ grate, on which chains are placed two hooks, and upon these
 “ hooks is attached another small chain, in which is inserted a
 “ brush, made either of whalebone, cane, weed, or bristles.”

One form of brush is composed of several parts “ hooked on
 “ to a rim of iron or other metal; a hollow pin of iron or
 “ wood, with a flat piece on the top of it, passes through the
 “ brush, the flat piece fitting on the top thereof; a hook is placed
 “ at each end of the pin,” to which is attached “ the small chain,
 “ the brush, when completed, being round, capable of expansion
 “ and contraction. When the brush has ascended to the top of
 “ the chimney, and the chain at the bottom of the pin is pulled,
 “ the brush expands, and, in descending the chimney, it removes
 “ the soot and dirt. This brush may be employed for cleansing
 “ large perpendicular or horizontal flues.” The brush may be

varied in construction. A piece of iron is attached "at the back of the fire-grate to guide the chain, and prevent it from twisting in ascent or descent."

[Printed, 8d. Drawing.]

A.D. 1856, June 9.—N° 1365. (* *)

FERRIER, ROBERT.—"Improvements in machinery or apparatus for sweeping and cleansing roads and streets."

According to this invention the "swept-up mass" of material is thrown to "one or other side of the line of the machine's path."

"The machine, under one modification, consists of a light open timber frame, having an iron framework attached carrying a row of fixed scrapers or brushes, or both combined, in two rows, such scrapers or brushes being disposed so as to form an angular or diagonal horizontal line, at an angle of forty-five degrees of the circle, more or less, with the line of the machine's path, the machine being guided by two wheels; instead of brushes, brooms, or besoms, or other sweeping details, may be used. The machine is intended to be used either as a scraper or a sweeper, whilst it may also scrape and sweep simultaneously if required. In cleansing narrow ways with such apparatus it is preferred to draw the machine either by hand or horse power, first along one side of the street and then back along the opposite side, so as to deposit the mud in two lines, one on each side of the road; but for broad streets two machines are to be used, one following the other, and cleansing first one side of the street and then the other, so that one side is always clear for traffic. The scrapers are guided in a parallel iron bar frame, each scraper having a small roller or rollers arranged so as give ease of rising and falling action, as due to the inequalities in the road. The scrapers are firmly pressed against the ground by springs, whilst a handle with a rack is provided to raise or lower the scrapers or brushes as may be required."

[Printed, 8d. Drawing.]

A.D. 1856, June 28.—N° 1518.

ORMEROD, GEORGE HENRY.—"Improvements in machinery for brushing and cleaning cotton fabrics."

A machine is described for brushing the completed fabric. The fabric is led over and between guiding and stretching rods to an emery roller, after which it passes over a roller against which a rotary brush acts. Then it is led over suitable rollers to any convenient receptacle. Both the emery roller and the rotary brush revolve in the direction opposite to that in which the fabric passes. The roller is meant to detach particles adhering to the fabric, and the brush to remove them.

[Printed, 6d. Drawing.]

A.D. 1856, June 30.—N^o 1534. (* *)

MORIARTY, CORNELIUS.—“Improvements in the construction of tube brushes used in cleaning the tubes of marine, locomotive, and all kinds of multitubular boilers.”

The invention “consists of the construction of brushes in such a manner that the wire, hair, or whalebone constituting the brushing or scrubbing part of the instrument is placed in a compact mass in the form of a screw or helix, which has sufficient pitch and space between the thread or threads of the screw to admit of the brush being screwed in through the ferrule of the tube.” The soot and dirt also will lodge in the space between the threads. The wire brush may be made the full size of the tube, while in bristle brushes the bristles are not doubled or bent in passing the ferrule. “A further improvement consists in placing the wire, bristles, or whalebone of the brush in greater quantity in the middle of the length of the screw,” so that the brush is stiffer in the middle. In the process of manufacture the material is cut and then placed “between two, four, six, or other numbers of wires,” “at right angles thereto.” The wires are then twisted together, so that they hold the bristles, etc. between them. Instead of wire, flat pieces of iron, welded at either end, may be used. A nose piece of iron may be attached at the end of the brush. The brush may be jointed to the handle or rigidly affixed to it.

[Printed, 8d. Drawing.]

A.D. 1856, July 1.—N^o 1535.

LUDFORD, WILLIAM HENRY.—(*Provisional protection only.*)
—“Improvements in the manufacture of brooms and brushes.”

The inventor says, "My said invention consists in a peculiar mode of arranging and fixing hair, bristles, fibre, or like materials in the heads or stocks of brushes and brooms.

"I make a groove in the face of the head or stock, into which I run the glue, pitch, or other adhesive matter, and having arranged the required quantity of bristles or fibre on a suitable plate or bar, over which another plate or bar can be laid and clamped or secured thereto to hold the same in temporary position, I am enabled to insert into each groove successively the entire quantity requisite to fill the same, and so on throughout, until each groove is similarly supplied; the ends of the head may be closed with wood, or by other convenient means. A like result may be obtained by laying a series of laths beside each other the required length of the stock, and facing the back of each stock with wood."

[Printed, 4d. No Drawings.]

A.D. 1856, July 4.—N^o 1571.

KEY, THOMAS.—(*Provisional protection only.*)—"Improved knife-cleaning machine."

"This invention consists of a roller brush made with bristles or any other suitable material, a sufficient length to admit knives to be laid round at each end. A cylinder is passed over the brush to keep the knives on the bristles; the cylinder is closed with straps to lighten the cylinder as the bristles wear away." No further description is given. The Drawings show a horizontally mounted cylinder, round which the knives are arranged with their blades parallel to its axis.

[Printed, 6d. Drawing.]

A.D. 1856, August 29.—N^o 2011. (* *)

POITIERS, EDWARD.—"The application of a new material or materials for the manufacture of brooms and brushes in general, and for other purposes, and for improvements in the manufacture of street scavengers' and other brooms and brushes."

The material employed is obtained from "the leaflets of various members of the palm tribe," this material being in fact "the rib or spine running through the centre of the leaflet," and forming at its base the foot stalk by which the leaflet is attached to its stem.

The material may be used either alone or mixed with other substances. The fibres being of tapering form, the holes made in the stock of the brush for their reception may be larger on the upper than on the under side of such stock, and the fibres will thus become wedged fast in the holes when driven into them. The stock is made in two parts, one of which is perforated for the reception of the fibres, while the other is fastened upon the first after that is fully charged with material, the second portion receiving the handle of the broom, and serving to prevent the fibres from leaving the other portion of the stock should they accidentally become loose.

[Printed, 4d. No Drawings.]

A.D. 1856, September 8.—N^o 2093. (* *)

HERRING, FRANCIS MITCHELL.—“Improvements in applying
“magnetic action to combs and brushes.”

The object of this invention is “so to charge a comb or brush
“with magnetic power that the comb or brush may be capable of
“transmitting the magnetic action to the skin of men or animals,
“thus communicating the beneficial effects produced by the
“action of the magnetic power or fluid.”

At the back of the brush, within a hollow made in the wood, a horseshoe permanent magnet is fixed. The polarity of the magnet is transmitted by means of two suitably placed iron plates (each in contact with a pole of the magnet) to two sets of “metallic wires” or bristles mounted on the front of the brush. These sets of wires may be either surrounded on the outside by a border of ordinary bristles or not.

[Printed, 6d. Drawing.]

A.D. 1856, September 9.—N^o 2101.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from F. H. Ouin.*)—“An improvement in and apparatus for sprinkling
“substances in a state of powder.”

For this purpose an implement is used which consists of a hollow handle furnished with a perforated cap; to this cap is fastened a brush of suitable material. The pulverised material is introduced into the handle and passes through the perforated cap to the bristles, by which it is sprinkled. The handle is closed at top, and “pegs for the better dividing of the substance may be

"inserted within the handle." A number of these implements may be mounted on a framework, or affixed to a sowing machine.

An ordinary brush composed of a tuft of fibres attached to a handle is figured in the drawing. This may be used for giving the first dose of sulphur in sprinkling vines.

[Printed, 8d. Drawing.]

A.D. 1856, September 25.—N° 2244.

WILSON, JOSEPH WILLIAM.—"Improvements in machinery or apparatus for manufacturing parts of brooms and brushes."

The first part of the invention relates to an apparatus for finishing the long handles of brooms. A length of wood, of a rectangular or other cross section, is fed through a hole in a rotating cutter head; attached to the cutter head are two cutting instruments which act on the wood. One is a gouge and the other a disc of steel having its edge bevelled, so as to form a cutting edge. The wood is first acted on by the gouge, and then by the disc. Both cutting tools are adjustable, so that different parts of their edges may be brought into action to avoid the necessity of frequent removal for sharpening. The wood is fed in by rollers, and received on the other side between two endless chains working over rollers. The links of these chains are formed so as to grip and hold the wood, and prevent its revolving.

"The second part relates to apparatus for forming the rounded ends of broom handles and other spherically formed parts of such articles. It consists of an arm in the form of a quadrant or segment of a circle, which is mounted by one end in a hollow rotating axis. This axis carries another axis concentric therewith, on one end of which a small pinion is placed, received into a recess of the quadrant arm; this pinion gears into a quadrant slide fitted in the arm." "Motion imparted to this pinion by its axis causes the quadrant slide to move towards or from the axis. This slide carries the cutting tool, which is carried round rapidly by the rotatory motion of its axis, the pinion and inner axis rotating with it. To the opposite end of the pinion axis a friction disc or drum is fixed, which drum is restrained in a given position with respect to the main axis by springs connected with the driving rigger or other part of the principal shaft. When friction is applied to the periphery

“ of this drum while rotating with the apparatus, the friction will
“ cause its motion to be retarded, and increase the tension on the
“ springs. This retarding produces a difference of motion be-
“ tween the pinion and the quadrant arm, which difference of
“ motion causes the quadrant slide to be traversed and to bring
“ the cutting tool towards the centre of motion in a circular
“ direction ; in its advance it cuts the end of handle of a hemi-
“ spherical form. The tool can be thus advanced with greater or
“ less force according to the friction applied. Immediately the
“ friction ceases, the parts acted on return to their original position
“ by the force of the springs. A centre pin supports the end of
“ the wood handle or other piece of wood in a position to be
“ operated on.”

“ The third part relates to an apparatus for chamfering or
“ bevilling the edges of broom heads, which consists of a
“ D-shaped groove or traverse in a suitable plate or bed. A
“ chuck or traversing head (to which the broom head is fixed) is
“ fitted on this plate, having two pins which enter the traverse ;
“ these pins are at a distance apart equal to the distance of the
“ centre from which the semicircular ends of the broom head are
“ described, and the straight part of the traverse in length is equal
“ to double that distance. Teeth are formed all round this chuck
“ or fixing head, into which teeth a pinion gears ; motion im-
“ parted to this pinion causes the chuck to be traversed along the
“ straight part of the groove, during which time the straight part
“ of the chamfer is being cut. After traversing the straight parts
“ of the groove, the continued motion causes one end to sweep
“ round the curved part of the groove while the other is being
“ chamfered or bevilled ; the motion is continued until the bevil-
“ ling is performed all the way round. A rotatory cutter in a
“ stationary position cuts the bevil during the traversing motion
“ of the broom head. This apparatus is also applicable for drill-
“ ing the holes round the bevilled edge, by simply moving and
“ stopping the broom head at intervals, and while stationary
“ bringing down the drilling instrument to form the hole.”

The fourth part refers to apparatus for making paint brush
handles. They are first sawn of a rectangular taper form, and
then placed in a machine which renders them octagonal. For
this purpose the wood is mounted in a chuck on a travelling
bed. One end is held by a “ bracket concentric with the joint
“ of an arm, which joint maintains a fixed and uniform position
“ with respect to the moving table.” The other end is supported

by a spindle in a bracket at the other side of the table. This side may be raised and lowered, "so as to incline the wood more or less to the plane of the table's motion." The piece of wood is reduced by a cutter, while the table is traversed underneath it. A number of blanks are acted upon at once, several spindles being mounted on one table, capable of being revolved simultaneously, so that the different sides of the blanks may be presented to the cutter. After leaving this machine, the blanks are passed to a "taper rounding machine," which consists of a "horizontal plate or disc, having by preference four cutters adjusted to it to slide towards and from its centre." "The eight-sided piece of wood to be rounded is placed with the small end in the centre of this plate, and in a vertical position, with the point resting in a centre piece. The upper end of the piece of wood is sustained by a chuck on a rotating spindle, by which rapid motion is imparted to the wood. The cutting tool slides are controlled in their position and caused to advance or recede by levers, the free ends of which pass over a pattern form of the painter's pin desired to be produced; while rotating, the wood passes through the centre of the cutter disc, the cutters being regulated so as to recede or advance towards the centre gradually," "to cut and reduce the wood to the shape required. In order that the parts of the apparatus may slide back to position after cutting one pin without moving the cutters, longitudinal grooves parallel to each other are made in the pattern form of the pin, which receive the tail ends of the levers when they are at the large end of the pattern, by partially turning the cutter, disc, or pattern form so that such levers and grooves coincide."

[Printed, 2s. 6d. Drawings.]

A.D. 1856, October 22.—N^o 2481.

WALTON, FREDERICK.—"Improvements in the manufacture of brushes."

The back is made hollow, and contains a cushion of felt or other material to give elasticity to the bristles. This back may be moulded of gutta-percha or similar material, combined or not with tortoiseshell, etc. In making the brush the cushion is placed in the hollow back, and may have behind it a piece of wood. The plate containing the bristles is then put on, a small frame which goes round the edge of the brush placed over the

plate carrying the bristles, and the whole cemented down. When great elasticity is required in wire brushes, the wires are set "in vulcanized or other preparation of india-rubber, to which a piece of cotton or other fabric is secured by paste or otherwise until the wires are set; the back of the india-rubber is then coated with india-rubber cement to secure the wires, and a back of cotton or other fabric is then secured round the margin outside of the wires; the cotton or other fabric is then removed from the front of the india-rubber, leaving the wires set entirely in the india-rubber. In some cases where great delicacy of action is required, as in flesh brushes," "a thin cushion or layer of cotton, wool, or other very soft material" is placed "behind the fabric and india-rubber in which the wires are set," and the remainder of the cushion is formed of hair, felt, or other suitable material. "When the back or mounting is of sheet metal, the hollow part containing the cushion is stamped to the required shape for giving strength and durability, and the light frame with the wires is secured thereto by binding the edges over a metal ring."

[Printed, 8d. Drawing.]

A.D. 1856, October 24.—N^o 2502.

MILLS, WILLIAM.—(*Provisional protection only.*)—"Improvements in apparatus for cleansing or removing the soot from chimneys."

A scraper is attached in the place of the usual brush in chimney sweeping apparatus. The scraper folds back so as to be easily inserted in the chimney, and is extended by means of a cord; or it may be fitted on springs for the same purpose. To the end of the handle above the scraper a small brush "on a cane of about three feet in length," may be attached for the purpose of sweeping narrow parts at the top of the chimney. The handle of the apparatus may be made of a single piece of gutta percha, and it may be covered when in use with lengths of split bamboo canes.

[Printed, 4d. No Drawings.]

A.D. 1856, November 4.—N^o 2591. (* *)

NEWTON, WILLIAM EDWARD.—(*A communication.*)—(*Provisional protection only.*)—"Improved machinery for sweeping floors, streets, and walks."

“ held in by a lever, and the upper slide of the rest drawn back
 “ by a spring,” so that another handle can be acted upon.

[Printed, 6d. No Drawings.]

1857.

A.D. 1857, February 7.—N° 356.

GREENSLADE, WILLIAM, and WOOD, JAMES.—“ Improve-
 “ ments in brushes, especially applicable to painter’s brushes.”

A slit is made in the thick end of the handle, and in this slit is placed a strip of metal of length sufficient to pass across the brush and of depth sufficient to allow the binding to lie in a notch at its ends. After this strip or plate has been placed in position, and the brush bound on the handle, the handle is driven home in the usual manner and the space in the slit filled up with wood. A clip of metal may fasten the plate and the handle together.

[Printed, 4d. No Drawings.]

A.D. 1857, March 4.—N° 638.

STEPHENS, JAMES.—“ Improvements in paint brushes and in
 “ similar kinds of brushes.”

The inventor describes his invention in these words:—“ My
 “ improvements in paint brushes and other similar brushes refer
 “ to the fixing and securing the hair or bristles of painters’
 “ brushes by means of an iron or steel band constructed and
 “ protected in the manner herein-after described instead of the
 “ cord or string usually employed for the purpose. For round
 “ brushes I make the band of a cylindrical form of a piece of iron
 “ or steel. This metal is first tinned and afterwards coated or
 “ covered with thin sheet copper soldered thereto, in order to
 “ protect the iron or steel from the action of the atmosphere and
 “ matters that may be liable to corrode that metal. The tinned iron
 “ or steel may be coated with copper or other metal on one or
 “ both sides, either by soldering or by electric deposit, or other-
 “ wise. Instead of copper, silver or other metal may be used
 “ that will serve as a protection to the harder metal (iron or steel)
 “ and prevent its corrosion. For this purpose also zinc may be
 “ applied to the iron or steel band by the process well known as

"galvanizing. I bend this compound metal in the form of a
 "hoop, and after brazing or soldering the junction I further
 "rivet it together to afford the necessary strength. These com-
 "pound metal bands may be contracted at the edge to contract
 "and compress the bristles, or may be otherwise formed to splay
 "or spread the bristles in any particular direction. I stiffen
 "these metal bands by grooves or creases carried round their
 "circumference; they are driven on the exterior of the brushes,
 "keeping the parts thereof compactly together and rendering
 "them extremely durable. These metal bands may be used for
 "whitewash and other formed brushes, either flat, oval, or of
 "other shape."

[Printed, *sd.* Drawing.]

A.D. 1857, March 13.—No 720.

BERGER, EMMANUEL, and MATILE, JULES EDOUARD.—
 "Improvements in machinery for beating and brushing carpets."

A frame supports the carpet, which is hung from a roller. The roller is driven by a strap and pulley, and rolls up the carpet upon itself. By this means every part is successively exposed to the action of the beaters. The beating apparatus consists of two vertical shafts, one of which is fixed, and carries the beating rods, while the other is capable of receiving rotary motion. The rods are pivoted on the fixed shaft, and are pressed against the carpet by springs. Their other ends project beyond the shaft, and are driven by tappets on the revolving shaft, so that by means of the springs a series of blows is delivered on the carpet. The beaters are slightly curved, to prevent their points from striking the carpet. At the top of the frame are two rollers carrying circular brushes, and the carpet passes between them. They are adjustable to the thickness of the carpet, and are driven by straps from the carpet roller. An additional guiding roller is provided to keep the carpet in the same vertical plane.

[Printed, *sd.* Drawing.]

A.D. 1857, April 2.—No 913.

WIELAND, JOHN FREDERICK.—(*Provisional protection only.*)
 —"Improvements in portable apparatus and materials for clean-
 "ing the teeth."

The brush is contained within a cylindrical case of ivory or similar material. The handle is very short, and made to screw into one end of the case, which thus forms the handle. The portion of the case not filled by the brush may be made to contain tooth powder. Or the brush may be contained with a metal case, made so that one part slides within the other, and is fixed in position for use by a spring catch. Along one side of the case may be a narrow box, closed by a lid, for holding tooth powder. A separate bottle for holding the powder is described.

[Printed, 4d. No Drawings.]

A.D. 1857, April 3.—N^o 928.

SMITH, JOHN.—“Improvements in machinery or apparatus “used in the manufacture of brushes for flour dressing “machines.”

The description given by the inventor of the process is in the following words :—“I place or distribute the bristles on a board “or platform made in two parts longitudinally of the length the “brush is required to be made. I then transfer the said board “or platform with the bristles upon it to the surface of a machine, “which has a longitudinal slot or groove formed by a moveable “jaw. The bristles being placed across the said slot or groove “transversely, I pass a cord or band over them parallel with and “over the slot or groove; a bar or blade is then caused to “descend upon the cord or band, and press it with the bristles “partially into the slot. The board or platform is then with- “drawn, and glue is introduced into the gutter thus formed by “the bar or blade, which bar is then further pressed down into “the slot until the bristles are doubled up at each side of the “bar, and by means of the moveable jaw are held in that “doubled position until the bar or blade is withdrawn. A pair “of claws are then applied to the whole length of the bristles, “and tightened up to secure and keep them in the same position “to be removed from the machine. I then form another row or “length of bristles, some as aforesaid, and made in the same “manner. The two rows or lengths of bristles are then placed “together with the root ends outwards, and the flags inwards in “grooved stocks made of two or more parts, which are laid in a “press and pressed together sufficiently tight to be screwed or “fastened permanently.”

[Printed, 10d. Drawing.]

A.D. 1857, April 4.—N° 939.

ADLER, ELKAN, and HOWELL, FRANCIS BARBER.—“Improvements in machines for cleaning knives and other similar articles.”

The base or frame of this machine is of the shape of a sector of a circle. Upon it the knives are held by staples with their handles projecting radially outwards. A lever is jointed to a fulcrum at the centre of the arc, and carries a brush of such size as to pass over the blades of the knives. A handle at the end of the lever enables it to receive the requisite to-and-fro motion. The knives must be turned to enable their other sides to be cleaned.

[Printed, &c. Drawing.]

A.D. 1857, April 14.—N° 1049.

WICKS, PETER, and GHISLIN, THOMAS GOULSTON.—“Superseding the use of bristles, coca fibres, flax, hemp, whalebone, &c.”

The inventor proposes to use for many different purposes the fibre of certain South African fibrous plants, some of which are enumerated. Amongst their uses the fibres may be made into brushes. From one plant, the “*juncus serratus*,” the inventors propose to make brushes by five different modes of treatment, viz. :—

“First, by cutting the plant into junks of proper lengths, dressing one end, but leaving the fibres at the other end to remain cemented by the gum nature has supplied it with, instead of being fastened by string, wire, iron, or copper bindings, as is usually done.

“Secondly, by stripping off the outer black fibrous leaves and using the inner fibre only, dressing one end, and leaving the other cemented by gum, as previously described.

“Thirdly, by cutting it into junks of sufficient lengths to allow of the fibre and handle to be one entire piece, instead of inserting a handle made of wood or of some other material.

“Fourthly, by rolling the outer black fibrous leaf into bunches of about the substance of a cigar, and when cut into proper lengths inserting them in that condition instead of being ‘deviled’ or ‘heckled,’ or divided into separate fibres like

“ bristles, hair, &c. &c., and then fastening by any means best adapted to the taste, skill, and good taste of the operator.”

“ Fifthly, by using the outer black fibrous leaves without rolling, and fastening them, layer upon layer, like flat feathers, by any ordinary or known process.”

[Printed, 4d. No Drawings.]

A.D. 1857, April 30.—N° 1212.

WALTON, FREDERICK.—“ Improvements in the manufacture of wire cards for metallic brushes and for carding fibrous substances, and in the machinery employed therein.”

In manufacturing wire cards it has been customary to bend each piece of wire into the form of a staple, in order to produce two points out of the same piece. This invention consists in cutting pieces of wire of the required length, and forming upon them at one end a head or projection, so as to retain them in the india-rubber or other material in which they are set, “ the object being to allow each wire to move independently of the others, and to be used effectively in every direction, as is required in cloth, cattle, and other brushes, and in some cases for carding fibrous substances.” In the machinery employed for carrying out the invention, the wire passes through a guide and is seized by nippers which present it to a holder. While held by the holder, a piece of the requisite length is cut off by shears. The piece is seized by a second pair of nippers and presented to dies, one stationary, the other formed by the end of a lever. While it is held by the dies, the wire is headed by a hammer, as in a pin-making machine. The instrument by which the wire is pushed into the dies may be made to point or smooth the end, if required. After being headed, the wire is seized by a third pair of nippers, and dropped into a trough. Thence it is pushed by a pushing instrument into the india-rubber or other material which forms the back. This material is moved forward and backward by suitable mechanism.

. [Printed, 10d. Drawing.]

A.D. 1857, May 9.—N° 1314.

HOW, ANDREW PEDDIE.—(*Provisional protection only.*)—“ Improvements in circular brushes for sweeping boiler and other tubes.”

The “ invention consists in forming the brushes in two or more parts, and in causing those parts to expand or recede from and

" approach each other, in order to fit different sized tubes." "To one part of the foundation of the brush" is fixed "a bed, carrying at the centre a boss or disc." "An aperture is formed through this disc to form the bearing for a screw, which is formed with a right-handed thread from the disc to one end, and left-handed thread from the disc to the other end. On each of these threads there is a travelling disc. The central boss is formed with a slot at top to receive a bar free to move up and down in it. This bar is flat over the central boss, and thence the two ends rise upwards. One end of the bar is passed through an aperture in one of the travelling discs, and the other end is passed through the other travelling disc. The other part of the foundation of the brush is connected by screws to the two ends of the bar. On turning the screw shaft the travelling discs will be propelled from or towards the central boss, and the parts of the brush will thereby be driven from or drawn towards each other."

Or, a bar is fixed "on the inside of one half of a circular brush foundation," and "two or more rods or bars swivelled upon it. To the inside of the opposite half of the foundation" is fixed a "tube with a slot therein, and inside this tube is a screw-threaded rod, carrying as many nuts as there are bars on the rods before mentioned. The free ends of these rods are connected to the nuts."

[Printed, 4d. No Drawings.]

A.D. 1857, May 27.—N^o 1497.

CODET-NÉGRIER, JEAN LÉONARD.—"Improvements in the manufacture of boots, shoes, harness, and other articles."

A cement is described, principally for use in shoemaking, but also applicable to many articles in the brush, basket, and other trades. Gutta percha is cut up into little bits, and soaked in water. India-rubber is also cut up, and the two are dissolved separately in sulphuret of carbon, sulphuric ether, or clarified essential oils. After four days dissolving the two are mixed together. Gum lac is dissolved in camphine or alcohol or used in fine powder; it is mixed with the gums in proportion of one-twentieth. Five per cent of sulphur may be added to give power of resisting heat.

[Printed, 8d. Drawing.]

A.D. 1857, July 31.—N° 2087.

GENHART, HENRY.—“An improved apparatus for cleaning
“ and sharpening knives, and cleaning spoons and forks.”

“The apparatus is composed of a cylindrical brush, fitting
“ tightly in a metal tube, said tube is supported and enclosed at
“ its ends by metal stands, through the centres of which pass an
“ axle, on which a circular brush is fixed, and revolves therewith
“ by means of a handle fixed on one end of said axle. On the
“ other end of the aforesaid axle, and at the outside of that
“ standard which supports this end of the tube containing the
“ circular brush, a narrow circular brush is fixed, and designed
“ for cleaning the ferrules of knives simultaneously with the
“ blades thereof, and by substituting another brush in place of
“ this last-mentioned brush spoons may be cleaned. The blades
“ of the knives are introduced into the apparatus through slits
“ or openings formed in the rim of one of the standards thereof.
“ The handle of the machine is turned until one side of the
“ knives, &c. is cleaned, after which they must be reversed and
“ the operation repeated. On the uppermost part of the afore-
“ said tube is a receptacle containing emery powder, brick dust,
“ or other polishing powder, which passes by an outlet to the
“ brush in the tube. In practice, it will be found advantageous
“ to mix a small quantity of vegetable oil with the polishing
“ powder to cause the powder to adhere to the brush.”

[Printed, 10d. Drawing.]

A.D. 1857, September 18.—N° 2425.

WILSON, THOMAS.—“An improved boot and shoe cleaning
“ apparatus.”

“This invention consists of certain improved mechanical
“ arrangements in combination with revolving brushes of suitable
“ forms, by the use of which the operation of cleaning boots and
“ shoes by machinery is rendered more efficient and expeditious
“ than heretofore.” “Revolving brushes of different forms and
“ degrees of hardness” are enclosed in a suitable framing and
“ placed in sets one above the other. “The lowermost set are
“ ~~for~~ brushing off the dirt, the next set for blacking the boots
“ or shoes, and the third set for polishing the same. The
“ boots and shoes to be cleaned are placed on suitable lasts

“ having hooks attached to them, which are afterwards suspended from an inclined rod or feeder, down which they slide until brought in contact with the cross bars of an endless ladder, by which, when motion is given to the handle of the machine, they are passed up between the aforesaid sets of brushes to the top of the apparatus; they are then disconnected from the ladder, and suspended on an incline rod ready for removal. The upward motion of the endless ladder can be suspended by drawing back the clutch on the driving shaft and the boots or shoes may thus be subjected to a longer action in either set of brushes when required. The blacking brushes are supplied by means of boxes made with a trough to contain water, which is contained by capillary attraction to the brushes, and by them to the blacking placed in a dry state above the trough; the upper part of the box is ridged or corrugated, so that the brushes in passing over the ridges are relieved of any superfluous blacking they may contain.” By adjusting the slide bars on which the brushes revolve, boots and shoes of different sizes may be cleaned.

[Printed, 1s. Drawings.]

A.D. 1857, November 25.—No 2944.

MABERLY, FREDERICK HERBERT.—“ An improved general polishing machine or apparatus.”

For cleaning forks two parallel boards are used, fitted with brushes. Between these the forks are fixed, and an alternate horizontal motion over a short distance is imparted to one of the boards by means of a tappet wheel, turned by the hand, or otherwise, and a spring. The forks are thus rubbed between the two brushes.

For cleaning knives, an endless band passes over a pair of rollers fixed in a frame. On the band are fixed small strips of leather or other material in such a way that may rub against and cleanse the blade of a knife when pressed against them. Suitable holes in the framework admit of the knives being placed in a proper position to be acted upon by the rubbers. Instead of two rollers four may be used, and a greater extent of rubbing surface obtained. The machine may also be adapted for cleaning boots “ on the foot,” “ after the mode in which the same is accomplished for the other purposes herein mentioned, save that the

“ plane and rotatory motions are continued together to give the
 “ motions required, for which purpose the extra cog wheel or roller
 “ may be required.” “ Two or more brushed rollers may be used
 “ for the same purposes.”

[Printed, *8d.* Drawing.]

A.D. 1857, November 30.—N° 2979.

NEWTON, ALFRED VINCENT.—(*A communication.*)—(*Provisional protection only.*)—“ Improved machinery for cleaning
 “ carpets and other fabrics.”

“ This invention relates to a novel arrangement of machinery
 “ for beating and brushing carpets and other fabrics requiring
 “ the like operations.”

“ The carpet to be operated upon is strained over a pair of
 “ rollers mounted in vertical standards, and it may be held at
 “ tension by means of a third roller having a traversing motion,
 “ the ends of the carpet being connected together to form an
 “ endless web. Fixed to a crossbar carried by the standards is a
 “ series of elastic beaters, the lower ends of which are caught up
 “ by revolving arms, and being suddenly let go the beaters will
 “ strike upon the suspended carpet and beat out the dirt. As
 “ the operation proceeds a progressive motion is given to the
 “ carpet. Above the beaters and extending across the machine is
 “ a rotary brush, which is caused to act upon the carpet and
 “ brush out the dust that has been brought to the surface of the
 “ carpet by the beaters. The bearings of the upper roller and
 “ that which has been described as having a traverse motion, are
 “ carried by sliding frames which are fitted with racks to admit
 “ of their adjustment by means of pinions mounted on the main
 “ framing.”

[Printed, *4d.* No Drawings.]

1858.

A.D. 1858, February 18.—N° 314.

JONES, FREDERICK.—“ Improvements in machinery or appa-
 “ ratus for cutting ‘ piassava ’ or other fibrous substances

“employed in the manufacture of brushes, which said improvements are also applicable to other purposes of cutting.”

“In the main or principal framing of this apparatus two upright bars slide vertically in V grooves, to which bars is attached the cutter or cutters, and a vertical reciprocating motion is imparted thereto by means of cranks upon a shaft driven by spur gearing, the cranks being connected to the top of the said bars by an intermediate connecting rod at each side, so that as the cranks rotate the required motion will be given to the cutters. The ‘piassava,’ cork, or other material to be cut, is placed in an adjustable gauge or receptacle, and retained therein by means of a pressing lever, whilst the knife descends to cut or reduce the material to the required form or length.” This apparatus may be applied to cutting other materials than cork and “piassava,” and it may be driven either by steam power or by hand.” The “piassava” or other fibrous material is used for the manufacture of brushes.

[Printed, 10d. Drawing.]

A.D. 1858, April 16.—No 827.

WALKER, GEORGE. — “An improved union apparatus for cleaning and polishing knives and forks, and boots and shoes, and which said apparatus is also applicable for sharpening knives, and sharpening or cleaning other articles.”

Several discs are mounted on an axle which is revolved by a handle. Over their surfaces are distributed leather, felt, bristles, or other suitable materials, preferably in radial directions, and so that the lines of the brushes, etc. may alternate on alternate discs, and thus overlap one another. Springs are fastened at the back of the brushes, etc. to allow a slight play. Suitable openings are made in the circumference of the case in which the discs are mounted, to admit of knives or other articles being subjected to the action of the discs. These openings are fitted with spring clips or elastic bands, for holding the articles firmly. The discs are fitted with brushes, etc. of different shapes, to enable forks or spoons to be cleaned, and for cleaning forks a boss carrying long bristles is arranged on the axle between two of the discs. These bristles enter between the prongs to clean them. The end of the spindle projects beyond the case, and upon it brushes, or circular pieces of wood covered with leather, or a small grinding stone, may be mounted for polishing and sharpening knives, etc. One

or two brushes may be fitted to the bars of the stand for the purpose of cleaning boots. Motion is given to them from a pulley on the spindle.

[Printed, 1s. Drawing.]

A.D. 1858, April 30.—N° 968.

ELLIS, GEORGE HENRY.—“Improvements in cleaning boots and shoes by machinery, and in apparatus for the same, which is also applicable to cleaning other articles in domestic use.”

The object of the invention is to provide a reciprocating rectilinear motion instead of the circular motion usually imparted to the brushes. For this purpose the brushes may be mounted on a shaft which has an oscillating movement conveyed to it from a rotating crank shaft, and the articles to be cleaned may be held against the brushes by hand. The inventor, however, prefers to use a machine in which the boots or shoes may be fixed in position to be acted upon by a set of brushes. Of these one fits the heel, and is curved, two straight brushes clean the sides, and one is shaped to fit the front part of the boot. All these have a reciprocating motion given them from a crank, and move within guides. The front brush is held against the boot by a spring. There may be three sets of brushes, one for cleaning off the dirt, one for applying blacking, and one for polishing, or the set for applying blacking may be omitted, and the blacking applied by a hand brush. In this case a peculiar box for containing the blacking is used, by which the supply of blacking is regulated. It has an opening in the side, through which the brush is introduced. The brush strikes one end of a lever, and raises the other end so that it strikes against the brush; this end carries a pad which supplies blacking to the brush. The lasts upon which the boots are held are of a special description. A small wooden last is fitted with an india-rubber sock, and an arrangement is made by which shot is allowed to run down from a receptacle above, and fill up the sock after the last has been placed in the boot. Instead of shot, water or compressed air may be used.

[Printed, 1s. 2d. Drawings.]

A.D. 1858, May 28.—N° 1203. (* *)

TINDALL, LORENZO.—“Improvements in machinery or apparatus for sweeping and cleansing roads and streets.”

"Under one modification this machine consists of an inclined framework, having at its lower rear end a rotatory sweeping brush actuated by the motion of the machine, and sweeping up the dirt into a receiving trough or cart body swung or suspended on a horizontal centre at the forward end of the frame." The machine is mounted upon four wheels, two large ones at the front and two smaller ones behind, "where the rotatory sweeping brush is situated, so that the latter is brought close down to the surface of the ground." A wide endless belt of matting formed of cocoa-nut fibre is mounted on rollers, and conveys the mud or material collected by the brush up a sort of inclined plane, from whence it falls into a "dirt receiver," which is suspended from the front axle of the machine. This belt is actuated by a driving band passing round a pulley on the axle of the front wheels, and round a pulley upon one of the rollers of the belt, and the same roller also carries a pulley, which by means of a crossed driving band gives motion to the brush through the medium of a pulley on the axis of the latter. These movements are of course consequent upon the motion of the machine along the road or street to be cleaned. These arrangements may be modified, in some cases chains and "studded wheels" being used to convey motion from one part of the machine to another, instead of bands and pulleys, and a "worm wheel movement" being introduced for the purpose of raising the lower roller of the endless belt "when the sweeping action is not required."

The tension of the endless belt may be regulated by screws, and a "segmental wheel" and certain adjuncts thereto serve to regulate the position of the brush. The receiver is tilted for the purpose of being emptied by the use of a windlass and chain arranged for the purpose.

[Printed, 1s. Drawing.]

A.D. 1858, June 7.—N^o 1277.

FERRABEE, JAMES.—"Improvements in machinery for cutting, collecting, and spreading grass, and for sweeping."

The first part of the Specification describes improvements in mowing machines, one of which consists of the employment of a revolving board or brush to ensure the delivery of the grass into the box. The second part describes an improved sweeping machine. A revolving brush is fitted in a case, open below to allow the brush to act on the ground, and forming a receptacle

before the brush to receive the sweepings. The brush receives motion by cog wheels or by an endless band from the carrying wheel. Two brushes revolving in different directions may be used. The brush is made of a series of brushes mounted on arms pivoted to a disc on the axle. These arms may be expanded by having on them pins which take into a notch in a scroll wheel. By turning this the arms are inclined in one or the other direction and so the radius of the brush is lessened. Or the same object may be effected by turning the disc on which the arms are hinged, and having a ring fixed a short way down the arms through slots in which they slide.

[Printed, 1s. 2d. Drawings.]

A.D. 1858, June 11.—N° 1327.

BIGELOW, LUCIUS A.—(*A communication.*)—(*Provisional protection only.*)—"Improved machine for sweeping carpeted and "other floors."

A box contains a cylindrical brush mounted on pivots. It is provided with a handle by which it is pushed along the floor, and runs on a swivelled castor and two wheels. One of the wheels is toothed, and works into another cogwheel on the axle of the brush. By this means a rotating motion is given to the brush in a direction opposite that in which it advances. Two dust pans, one behind and one before, are provided.

[Printed, 4d. No Drawings.]

A.D. 1858, July 29.—N° 1715.

HINKS, JOSEPH LESTER.—"Improvements in machines for "cleaning knives, forks, spoons, and such other articles as are "or may be cleaned by polishing; also in machines for sharpening knives."

The "improvements consist, firstly, in constructing machines "for cleaning and polishing knives and other articles in the "following manner :—The said machines consist of two cylindrical "brushes working together after the manner of a pair of rolls. "The said brushes are geared together by toothed wheels, and "driven by another toothed wheel or band worked by a winch "or otherwise. Rapid rotation is given to the brushes, and the "knife, fork, or spoon is introduced between them. Any of the "well-known polishing powders or pastes may be supplied to

“ the brushes. In cleaning articles of complicated form, such as
 “ cruet frames, the upper brush may be ungeared from the lower
 “ one, and the top of the case which covers the brushes being
 “ removed the cruet frame or other article is submitted to the
 “ action of the rotating upper brush, and thereby polished.

The second part of the invention consists “ in attaching to the
 “ foundation board or other convenient part of knife-cleaning
 “ machines a surface of leather or other suitable material covered
 “ with the cutting powders or mixtures used by polishers, and
 “ called dressing. The said dressing consists wholly or mainly
 “ of emery powder, and is attached by glue or other adhesive
 “ matter. By drawing the knives occasionally over the said
 “ dressing, either before or after cleaning, they may readily be
 “ kept sharp.”

[Printed, 8d. Drawing.]

A.D. 1858, August 12.—N^o 1838.

BAXENDALE, REUBEN.—(*Provisional protection only.*)—“ Im-
 “ provements in brushes, mops, or apparatus for washing and
 “ cleaning.”

The inventor thus describes his invention :—

“ I make the head of the brush or mop hollow, and of any
 “ suitable size or shape, to which I attach bristles, rags, ropes,
 “ sponge, or any material suitable for the purpose of washing or
 “ cleaning. To this hollow head I attach a flexible tube, through
 “ which water or any required liquid shall pass, and by means
 “ of a valve in the said hollow head the flow of the liquid is
 “ regulated so as to supply the necessary quantity for the purpose
 “ required; for instance, in washing railway carriages at a
 “ station there is generally a tank of water fixed in an elevated
 “ position; to the said tank of water I attach a flexible tube of
 “ sufficient length to be used by the person washing or cleaning
 “ the carriages; to the other end of the tube I fix the aforesaid
 “ apparatus, then the person using it has only to adjust the
 “ valves, so as to allow the necessary quantity of liquid to flow
 “ through and he may continue to wash the carriages without
 “ having to dip his brush or mop continually in a bucket of
 “ water. If it is necessary to have a handle or pole attached to
 “ the hollow head, it may also be made hollow if desirable, in
 “ that case the flexible tube may be attached to the end of the

" said handle. It will be evident that in using this apparatus the water or liquid must have a certain amount of pressure, which may always be obtained by raising the vessel containing it a little above the position of the operator."

[Printed, 4d. No Drawings.]

A.D. 1858, September 1.—N° 1987.

WARNE, WILLIAM.—"Improvements in the construction of elastic pavements and linings for walls, and in the manufacture of elastic mats, brushes, and pads for packing furniture."

All these articles are made by forming short tubes of india-rubber over iron tubes and arranging them side by side so that a cellular or honeycomb fabric is produced. When the rubber has been cemented together, the iron tubes are removed. It is preferred to have the outside tubes square instead of round. For brushes a piece of india-rubber is attached so as to form a back, and in floor brushes an additional strip is attached to the back to make a handle. When the article has been made in the usual way of making india-rubber, it is vulcanized. Flesh brushes and tooth brushes may be made in the same way by using suitable thicknesses of wire. For tooth brushes the rubber tubes are formed on pieces of wire and the brushes are fixed to handles in the usual way.

[Printed, 6d. Drawing.]

A.D. 1858, September 4.—N° 2006.

CHILD, WILLIAM HENRY.—"Improvements in hair and skin brushes."

The invention "consists in constructing electrical brushes by the employment of steel pins or wires in substitution for or in combination with bristles, which pins or wires are placed in metallic connection with a battery contained in the handle or back of the brush;" or wires of two metals are employed "one electro-positive to the other and so arranged with respect to each other that on being moistened, either directly or through sponge or other absorbing material fixed at the roots of the wires or otherwise, an electric current or series of currents shall be generated."

[Printed, 10d. Drawing.]

A.D. 1858, September 21.—N° 2122.

NEWTON, ALFRED VINCENT.—(*A communication.*)—"Improved machine for sweeping carpets and floors."

"This invention relates to the combination of a cylindrical brush with a traction roller in the construction of a machine for sweeping carpets and floors. The brush is mounted in a box furnished with a handle, whereby it is propelled over the carpet or floor to be swept; and outside of this box the traction roller is mounted in bracket bearings. The brush is formed of bristles which are drawn into a helical groove cut around the shaft which forms the axle of the brush, and held in place by means of a wire in such a manner as to give the bristles an inclination of about forty-five degrees to the axis and to a radial line passing directly outward from it. By this arrangement one wire will suffice to secure the whole of the bristles that go to make up the brush. The brush is connected by a belt or cord to the traction roller, and it is caused to rotate as that roller is passed over the carpet or floor. The traction roller is made by winding a strip of india-rubber or other suitable substance around a roller or cylinder, the inclined edges of this strip of rubber serving to give adhesion to the roller. The dust which is thrown up by the revolutions of the brush is caught in troughs formed in the bottom of the box."

[Printed, 8d. Drawing.]

A.D. 1858, November 3.—N° 2454.

TALL, JOSEPH.—(*Provisional protection only.*)—"Improvements in brushes or brooms for sweeping floors, carpets, and other similar articles."

"The invention consists of a cylindrical formed brush, the shaft of which is connected by means of a band or by toothed gear with the axle of a rolling cylinder or pair of wheels or rollers placed at its rear; in some cases other rollers may be placed in front; a chamber having an opening in it is placed so that the opening is towards the brush. A pan or drawer is placed within the chamber, which can be withdrawn when necessary; the whole is enclosed in a light cover enveloping the top sides and ends, leaving the bottom portion open; the edges along the bottom are lined with strips of india-rubber or other material so as to fit close with the floor or carpet. When

“ urged forward by the handle, similar to an ordinary brush, the motion of the rollers is communicated to the brush, which, in turning, sweeps and lifts the dust into the pan, which may be removed when full; the apparatus being wholly enclosed none of the dust can fly about.”

[Printed, 4d. No Drawings.]

A.D. 1858, November 13.—N° 2553.

LAVATER, MANUEL LEOPOLD JONAS.—“ Improvements in the manufacture of mats, coverings for floors and other surfaces, and other cellular articles, when india-rubber compounds are used.”

Mats are made by punching holes in a sheet of india-rubber and then vulcanizing it. Or two sheets may be punched separately and cemented. Brushes and other articles may be made in a similar way. Instead of punching the sheets, they may be moulded with the holes in them, and vulcanized afterwards either in or out of the moulds.

[Printed, 4d. No Drawings.]

A.D. 1858, November 23.—N° 2660.

NEWTON, ALFRED VINCENT. — (*A communication.*) — “ Improved machinery for sweeping floors.”

“ The revolving brush is mounted on a tapering case which is embraced by a bridle piece, one extremity of which receives the axle of the brush and the other is secured at a point on the case between the axle of the brush and the centre of a driving wheel which runs in contact with the floor, and is carried by a stud pin fixed in the side of the case. This excentric connection is used to make the machine self-adjusting, that is, so that the driving power applied to the wheel shall exceed under all circumstances the friction of the whole brush, whatever that friction may be, thereby enabling the machine to sweep as lightly or as heavily as may be desired.

“ In order to effect the above result more successfully, the handle is placed, instead of in the centre of the machine, near to the driving wheel, so that the power may be applied more directly hereto. The object of making the machine of a tapering shape is to permit the small end of the brush to be run into the corners of a room, the large end being of sufficient capacity to

“ contain all the dirt that may be swept up. The dust receiver
 “ and its hinged door form a chamber in close proximity to the
 “ brush and divided from the other portion of the case by suitable
 “ lips, which will secure the retention of the dust when once
 “ deposited in the chamber. The bristles of the brush are
 “ arranged helically thereon, so as to convey the dust into the
 “ larger end of the receptacle. To provide for the adjustment
 “ of the brush as its diameter is reduced by wear, the axle instead
 “ of being carried directly by the case, is mounted in adjustable
 “ bearings, which are capable of being fixed at any required
 “ elevation of the machine.”

[Printed, 10d. Drawing.]

A.D. 1858, November 24.—N° 2667. (* *)

HESS, RICHARD HENRY.—“ A new manufacture of articles,
 “ parts of articles, parts of machinery, surfaces, and ornamental
 “ works, from talc and other silicates of magnesia.” Among
 the articles mentioned are backs of brushes. These substances
 are reduced to a state of powder, and then pressed into suitable
 moulds, colouring matter being added when required. “ Other
 substances may also be added to the silicates, such as kaolin,
 alumina, lime, carbonate of barytes and felspar, at the option of
 the manufacturer.” After being formed in the mould, the article
 is removed therefrom, and baked or fired. The addition of a
 small proportion of glass to the material before pressing it into
 the mould “ assists the fusing operation.”

[Printed, 4d. No Drawings.]

1859.

A.D. 1859, February 11.—N° 385. (* *)

BENNETT, NICHOLAS.—(*Provisional protection only.*)—“ Im-
 “ provements in the construction of brooms or brushes for sweep-
 “ ing or cleansing streets, roads, and thoroughfares, also appli-
 “ cable to domestic purposes.”

According to this invention the brooms or brushes used for
 sweeping streets or roads are made with the heads longer and

narrower than usual, the handle being "Y-shaped," in order to give the operator more effectual control over the brush. The bone, bristle, or other substance of which the brush is composed is of various lengths and sizes, the weakest being placed in that part of the head furthest from the operator when in use, while the stronger ones are in the part nearest to him. In some cases the brush is so arranged that the operator draws it after him, and it is furnished with double handles, and a small wheel at each end of the broom head. The brushes may have tongues of sheet metal placed behind them, which will add to their effect. The inventor states that by these means streets and roads may be cleaned with less labour and in less time than by the brushes in ordinary use.

[Printed, 4d. No Drawings.]

A.D. 1859, February 16.—N° 432.

NEWTON, ALFRED VINCENT.—(*A communication from Ira W. Shaler.*)—"Improvement in the construction of brushes."

"This invention relates to a mode of securing the bristles or fibres of brushes to the handle or back, the same being particularly applicable to cylindrical brushes. To this end a helical groove is first turned in the handle, and a plastic siccative cement is then applied to the groove. The bristles are then inserted in the groove, and secured therein by means of a binding wire which passes outside of the thickness of bristles, and is fastened at its ends to secure it in position. The cement may be made of linseed oil, or other siccative oil and rosin, or other similar and suitable substance, which will be plastic when the bristles are drawn in."

[Printed, 6d. Drawing.]

A.D. 1859, March 16.—N° 667.

HARRIS, JOSEPH, jr.—(*Complete Specification but no Letters Patent.*)—"Improved carpet sweeper."

The cylindrical brush has on one end of its axle a cog-wheel, which receives motion from another cog-wheel on the axle of a driving wheel. The sweeper is supported by this driving wheel and by three slides or runners, so that motion is communicated to the wheel as the machine is pushed over the ground. The brush is formed of four rows of bristles, and is mounted with its journals on discs, so that it can be raised and lowered slightly. The front

receptacle for dust has its side next the brush "curved in conformity to the periphery of the brush," to prevent dust falling on the carpet. Another receptacle is fixed behind the brush. Both receptacles are mounted on hinges. The handle is attached by a hinge in such a way that it may be readily disconnected. Instead of carrying a cog-wheel on its axle, or having cogs cut on itself, the driving wheel may have its circumference coated with india-rubber, and may act by simple friction.

[Printed, 6d. Drawing.]

A.D. 1859, March 22—N° 733.

WATKINS, CHARLES A.—"Improvements in the manufacture of brushes."

Metal bindings are used instead of string, or rings of metal. These bindings are made by winding wire (preferably tinned) on a mould, and soldering the wire together in any convenient way. If hard spelter is used, a strip of metal is placed over the wire to keep it in position, and the mould is removed; otherwise the soldering is done on the mould. Instead of wire, strips of metal may be used, equal to or less than the breadth of the binding. If great strength is required, a square rod of metal may be used. The brushes are made by placing in the rings the proper quantity of hair, and driving in conical handles as usual. In "socket brushes" the hair is drawn partially through the ring, and the vacancy filled up with wood or other material. Or a smaller ring may be used, and the block of wood fixed to the handle above the ring. The block and ring are then bound over with wire or string. In another way of manufacturing "socket brushes," "a mould is made of the size the socket is required, the smaller end of which is turned to receive the shallow metal binding last described, the exterior diameter of which is equal to the diameter of the mould; the ring is put on the mould, and they are both covered with a binding of web or string; this is glued, and when dry the whole is removed from the mould. The brush is made in the socket in the same way as before."

[Printed, 6d. Drawing.]

A.D. 1859, May 26.—N° 1300. (* *)

PATRICK, HUGH WILLIAM.—"A new substance or material to be used in lieu of ivory and other like substances."

In preparing the new material the following substances are employed, either separately or combined in suitable proportions :—
 “ Amber, Canada balsam, the Australian gum kowrie, potato flour or fecula,” “ meerschaum, paper pulp, calcined bones, fluorate of silica, sulphide or sulphurets of mercury (vermillion) or of other metals, chlorides of zinc or other metals, alkaline preparations, ashbustos, fluxed or fritted colors, or finely powdered pumicestone, sulphur, india-rubber, or similar gums.”

“ The combinations may be effected in various ways, such as by reducing the gums to solution or ‘ hard bodies ’ or precipitates, or by the application of heat.” Where solutions are adopted, the gums employed are dissolved in “ naphtha, mithilated spirits, chloroform or essential oils, or other suitable solvent.” In this state of solution, or “ in a state of precipitate,” the gums are added to the above-mentioned substances or to such of them as may be necessary, the latter substances being in a state of powder, or they may also be mixed with the gums whilst they are in a state of fusion.” When thoroughly mixed, the whole is evaporated “ to a thick paste, and when at a proper consistency ” it is rolled, cut, or moulded. “ Where shaped or moulded, the new material is hardened by the application of heat, and will bear a very high polish.”

This invention is (amongst other purposes) applicable to the manufacture of “ brush handles.”

[Printed, 4d. No Drawings.]

A.D. 1859, June 3.—N^o 1371.

BURROW JAMES, and WILSON, WILLIAM NEWTON.—“ An improved floor scrubber and sweeper for carpets, floors, lawns, and other such-like useful purposes.”

A metal case is mounted on three wheels, two of which are small and serve merely for support, while the third is larger. The larger wheel is grooved, and has a band over it, which passes over a pulley on the axle of the cylindrical brush. One end of the axle of the brush is mounted in a hole in the side of the case, the other in a slot at the other side. There are several corresponding holes and slots, so that the brush may be mounted at different heights to allow for wear. Over the brush is fixed a row of teeth which clear it. The brush is made like a bottle brush. **A receptacle for dust is made by fixing a metal rim to the edge of the case in front of the brush.** If the sweeper is made on a larger

scale a train of cogwheels is used instead of the band and pulley. The scrubber is made in a similar way, but the brush is of stiffer material, and a receptacle for water is fixed above the brush, with a perforated plate to sprinkle the water before the brush. An additional small roller spreads the water in front of the brush. A roller behind may carry a heater for drying the floor. Two wheels carrying an endless band, which drives a pulley on the brush axle, may be used. A moveable plate for lowering the brush may also be applied. The handle springs on to a stud on each side of the case, and may be lengthened by screwing on an additional length.

[Printed, 6d. Drawing.]

A.D. 1859, July 8.—N^o 1623. (* *)

GIBBS, JOSEPH.—“Improvements in the manufacture of “brushes, brooms, coverings for floors, mats, scrapers, and other “scraping and scrubbing surfaces.”

This invention consists in composing the scraping or rubbing surfaces of brushes, brooms, scrapers, mats, and other analogous articles, of strips or pieces of vulcanized india-rubber, or other like material, set up edge or endways, and secured in any convenient manner to some suitable back or frame. The particular mode of carrying out the invention “will depend in some measure “upon the nature of the article required, or the purpose for “which such article is intended to be applied. The principle “upon which the articles are constructed will however be the “same in all cases, and may be described as consisting in securing the strips or pieces of rubber to a wooden or other suitable “back by clamping them in a socket or jaws, and leaving a certain length of material projecting therefrom. The rubber may “either be used in the form of strips of sheet rubber of suitable “thickness and length, or it may be cast or moulded in pieces “which form projecting pins or studs, standing out like the “bristles of a brush from the perforated wood or other substance “forming the back of the manufactured article.”

The invention is described in detail under various modifications, a broom for removing “wet, or mud, or dirt,” being more particularly set forth as consisting of a “broad board” secured to a handle, and having a strip of vulcanized india-rubber attached thereto and projecting below the edge of the board.

[Printed, 10d. Drawing.]

A.D. 1859, July 27.—N° 1740.

MENNONS, MARC ANTONIE FRANCOIS.—(*A communication from Hippolyte Gaudibert.*)—(*Provisional protection only.*)—"An improved comb cleaner."

"This comb cleaner is composed of a number of metallic blades (pieces of watch spring, for instance,) set upright in a harp-shaped hand piece of wood, vulcanite, or other suitable material. A cluster of bristles is fixed at the upper end of this hand piece in such a way that on passing the blades between the teeth of the comb, by a downward movement, the greasy matters dislodged are completely carried off by the brush arrangement which follows the track."

[Printed, 4d. No Drawings.]

A.D. 1859, August 30.—N° 1976.

HUTTON, HENRY.—"An improved lubricator,"

The lubricator is designed for use in steam engines of various classes. A brush is used instead of the usual fibrous material. This is attached to the bottom of an oil reservoir, so that the oil flows through the bristles. In large engines a small pipe leads from the reservoir to the midst of the bristles. The supply of oil is regulated by a cock. By means of a "jam nut" the length of the protruding part of the bristles may be regulated. The lubricator is fixed to any convenient part of the engine, so that the part to be oiled is brought into contact with it by the motion of the engine.

[Printed, 8d. Drawing.]

A.D. 1859, October 27.—N° 2455.

STEVENS, CHARLES.—(*A communication from Jean Jacques Monnié.*)—"A machine for scouring and polishing floors and decks of ships."

A cast-iron frame or box is mounted on rollers and provided with long handles by which it can be moved about. Underneath it is furnished with brushes, which are pressed upon the ground by springs. These brushes are removeable, and their place may be supplied by holders for carrying sandstone, wax, or other polishing material. "The brush is so formed that all its angles are acute, which enables the brush to enter corners." The

sweeping machine as shown in the drawing is square, but a triangular brush (not described) is also shown. It has bristles underneath and at its sides, and a long handle, but no rollers or springs.

[Printed, 10d. Drawing.]

A.D. 1859, October 27.—N° 2457.

RASCOL, EUGÈNE HIPPOLYTE. — (*A communication from Johanna Perry.*)—(*Provisional protection only.*)—"A new implement for cleansing of the plates, dishes, and other table or kitchen utensils."

For these purposes a brush is used which the inventor describes in the following words:—

"To the end of a handle or stick, the most convenient length of which I find to be about one foot, I adapt a brush of about the size of the brushes used by painters, i.e., four to five inches length, and three to four inches diameter; but instead of being made of hair I make these brushes with tow yarn, flax yarn, jute, together or separate, mill waste of all description, cotton yarn, or flock, linen or cotton threads, linen or cotton cuttings of all description, all the above materials being very easily cleansed and kept in good state of cleanliness. It is besides understood that with this new implement it is no more necessary either to plunge one's hand into the hot water, or to handle the dirty and greasy dishcloths as before."

[Printed, 4d. No Drawings.]

A.D. 1859, October 28.—N° 2465.

PLANTIER, JOSEPH. — (*Provisional protection only.*)—"Improvements in brushes or brooms."

"These improvements relate to that description of brushes or brooms provided with a handle as are made use of for rubbing, washing, or cleansing floors, brushing carpets or tapestry, whitewashing or roughly painting walls, or other similar purposes. The same consist in connecting the handle to the broom or brush by means of any suitable joint or articulation; such, for instance, as a knuckle, universal, or other joint, allowing the brush in whatever position of the handle properly to come in contact with the surface the same has to act upon, a spring giving sufficient elasticity to the action of the brush,

“ while, on the other hand, this latter may be momentarily fixed to the handle in any suitable position by a hook or any other similar means. As a connecting joint” the inventor prefers simply fixing in the back of the brush towards the middle of its length two small ears or ring screws, in the ears or rings of which turn the ends of one arm of a T-shaped piece, the other arm of which is fixed to the end of the handle.”

[Printed, 4d. No Drawings.]

A.D. 1859, November 25.—N° 2670.

READ, ISAAC ALFRED, and RENNIE, WILLIAM.—(*Letters Patent void for want of final Specification.*)—“ Improvements in connecting brooms with their sticks or handles.”

The following is the description given by the inventors :—

“ Our invention consists of the method or methods herein-after explained of connecting brooms with their sticks or handles in place of inserting the end of the broom stick in a hole in the broom, and fixing it by means of nailing, as ordinarily practised. We fix on the end of the broomstick a metallic cap or ferrule, the said cap or ferrule being screwed in its interior, and fixed on the broomstick by being screwed thereon. On the end of the said cap or ferrule is a projecting peg or tube having a screw on its outside, and the said peg or tube is fixed to the broom by being screwed in a hole in the head of the broom. By this method of connection the broomstick can be readily connected with and disconnected from the broom at pleasure. Instead of screwing the cap or ferrule on the end of the broomstick we sometimes make the said cap or ferrule without an internal screw, and fix the said cap or ferrule on the end of the broomstick by means of a screw passed through a hole in the side of the said cap or ferrule.”

[Printed, 4d. No Drawings.]

A.D. 1859, December 27.—N° 2951.

TAYLER, WILLIAM ELFE.—(*Provisional protection only.*)—“ Fastening the hairs in tooth brushes and other brushes.”

“ The hairs before being inserted are tied in a single knot as one would a piece of string. They are not tied separately, but in a small bundle, that is to say, about as many as would form a single tuft of hairs in a brush made after the usual plan,

“ which is technically called drawing. The bundle of, knotted hairs is then doubled up as you would close an open carpenter’s rule, or shut a razor, the bend or doubling being just at the knot. The hairs are then secured in that position by means of a string tied round them, or any other suitable means, just above the knot; after which the hairs are cut off an inch or more above the knot, and then inserted in the stock or brush from the back instead of from the front thereof, as is usually done; the cut end is pushed in first. The holes for the reception of the hairs thus knotted and tied are made by the inventor larger at the back than the front, but the brush may be made if the holes are the same size all through. He reserves the right of making the holes of any shape. It is, of course, necessary that there should be a back of some kind to the brush to be added after the tufts of hair are inserted, so as to secure the tufts from coming out at the back part of the brush. The knot must infallibly prevent them from coming out at the front as often happens at present.

“ The inventor finds also that any attempt to pull out single hairs is ineffectual, and only serves to pull the knot tighter than ever.”

[Printed, 4d. No Drawings.]

A.D. 1859, December 30.—Nº 2988.

GEDGE, WILLIAM EDWARD.—(*A communication from Ernest Poussart.*)—“ An improved tooth brush.”

The inventor proposes “ forming a brush which will serve to clean both the outer and inner surface of the teeth,” for which purpose he places “ on the same handle at one end a brush, such as is usually used for the front of the teeth, and at the other end a brush curved convexly in its width and length to coincide with the shape of the inner surface of the teeth and gums, placing this brush at such an angle to the handle as shall be found most convenient, two slopes or cuts at the junction of the brush with the handle permit the upper and lower inner surfaces of the teeth and gums to be cleaned at the same time, if the mouth be nearly closed, or separately if the mouth be widely opened.”

[Printed, 6d. Drawing.]

1860.

A.D. 1860, January 3.—N° 8.

HARDY, THOMAS.—"An improved tool for cleaning the inside of the tubes or flues of tubular steam boilers."

The invention "consists of two or more elastic steel springs screwed at one end so as to fix to a circular plate, to the other end is attached a scraper or brush of a radius to correspond with the inside of the tube or cylinder requiring to be cleaned, and the springs being bent outwards at the lower ends to the requisite distances, are controlled or worked by a sliding plate with slot holes in, one for each spring. To the plate wherein is fixed the springs is attached a tube of the necessary length, serving the purposes of a handle or rod, in the inside of which there is introduced another smaller rod or tube, which is fixed into the slide plate so as to form a handle to control the action of the springs, so that they can be controlled at will. The action of the above apparatus is as follows:—The side plate being pushed up by the inner rod brings the scrapers or brushes into a smaller compass than the tube or cylinder requiring to be cleaned, so that they can be put past a ferrule, or anything of the kind, fixed in any tube, and the slide plate being drawn to the bottom of the steel springs allows them to expand, so that the brushes or scrapers come in contact with the sides of the tubes or cylinders, and the apparatus being moved up and down by the handle, causes it to scrape or brush (as the case may be) the surface requiring cleaning."

[Printed, &c. Drawing.]

A.D. 1860, February 13.—N° 390.

COLE, RICHARD JOHN.—"Improvements in the construction of brushes."

The handle of the brushes is made separate from the body, and is united to it by "elastic material or metallic springs." The method of manufacture is chiefly applicable to hair brushes, and tooth brushes. The second part of the invention "to the manufacture of head brushes for the purpose of being the same more portable." The inventor thus he way in which this is effected:—

"I pass the double end of the bristles through holes made in a thin metallic plate (or wood in some cases, but for portability I prefer the former), the sides of the holes nearest the handle being bent inwards; a wire passes through the loops of the bristles and communicates with the handle which is to slide into and out of the upper part of the body of the brush; so it will appear that as the handle is withdrawn from the body, the upper part or looped end of the bristles will be drawn forward, bringing the bristles from a horizontal position into a rectangular line with the perforated body of the brush. Great simplicity will be found in cleaning brushes of this construction, as when the handle is pushed into the body and the bristles lying in the recesses formed in the brush, the plate presents almost a flat surface, which can be cleansed from grease and dirt by a cloth, sponge, or flannel. One of the principal advantages of brushes of this construction being that the bristles retain their stiffness until worn down to the plate without being weakened by continual bending; the handles of these brushes may also be made flexible, and to be detached as occasion may require."

[Printed, 4d. No Drawings.]

A.D. 1860, February 20.—N^o 461. (* *)

MART, FREDERICK WILLIAM.—"Improvements in the manufacture of mops or 'sponges' for cleansing cannon."

"For these purposes it is preferred to employ vegetable fibres woven and made up as hereafter explained; at the same time wool or other animal fibre may be similarly woven and made up into mops or 'sponges.' The back of the fabric is, when vegetable fibre is employed, by preference of strong yarns of flax or hemp, which yarns compose the warp of the woven back fabric, it being wefted by similar yarns. And on the face of such fabric, intermediate of the two ends of a piece which is to be used in making a mop or sponge, a strong cut pile is produced, by preference of strong fibres of hemp," "in like manner to that in which piled rugs and mats have hitherto been produced." "The two edges or selvages of the fabric are sewed together so as to form it into a tube, the pile being outwards; and one projecting end of this back fabric is folded over and sewed, so as to receive a draw string or cord; and the other projecting portion

“ of the weaving is folded in at the end, so as to close it. The head or end of the stave or handle is introduced into the tube, and then the draw string or cord is drawn tightly, so as to close that end securely on to the stave or handle just beyond the larger end or head.”

[Printed, 6d. Drawing.]

A.D. 1860, March 10.—N° 654.

POPE, FREDERICK ALEXANDER, COOK, EDWIN FREDERICK and WOODWARD, RICHARD FREDERICK.—“Improvements in connecting brooms and brushes to their sticks or handles.”

The following is the description given by the patentees:—

“On the end of the broomstick or handle, we fit a ferrule having a spring catch in its side, and in the head of the broom we fix a socket, into which the ferrule on the end of the broomstick fits. Immediately below the edge of the socket is a slot, in which the spring catch of the ferrule engages when the said ferrule is inserted in the said socket, the broom becomes thereby fixed on the broomstick immediately one part of the connector is inserted in the other. In order to disconnect the broomstick from the broom, it is only necessary to press upon the spring catch, it becomes thereby liberated from the slot in the socket, and the stick may now be removed from the broom. In order to prevent the ferrule turning in the socket, the said ferrule may be made flat on one side, and the socket of a corresponding figure; or a rib on the ferrule may engage in a groove in the socket, and the rotation of the ferrule be thus prevented. Instead of the spring catch we sometimes employ a sliding bolt working on the broom head, the said sliding bolt being engaged in a slot in the ferrule by being shot and disengaged therefrom by being withdrawn. We sometimes dispense with the socket in the head of the broom, and make two or more ears having holes in them on the top of the ferrule on the end of the broomstick. When the said ferrule is inserted in the hole in the head of the broom, we drive nails or screws through the holes in the ears, and thereby secure the ferrule and stick to the broom; we prefer, however, the method of connection first described.”

[Printed, 8d. Drawing.]

A.D. 1860, March 17.—N° 706.

WILSON, WILLIAM NEWTON.—“Improvements in floor
“sweepers.”

A box or case of convenient shape carries a cylindrical brush. It is supported on rollers. A driving wheel runs on the ground, and has on its side cogs which gear into a pinion on the axle of the brush, and so rotate the brush. One end of the brush is mounted on a short lever, so that it can rise or fall within certain limits, and thus adjust itself to the inequalities of the ground.

The handle may be pivoted to the axle of the brush, so that it presses down the brush on the floor. A short lever is attached at one end to the pivot on the end of the brush axle, and at the other to a fixed pivot, on which also the driving wheel revolves.

[Printed, 6d. Drawing.]

A.D. 1860, July 17.—N° 1726.

FLETCHER, JAMES.—“Improvements in machinery or apparatus for regulating the supply and discharge of fluids to steam
“boilers, pipes, and other vessels, and for cleansing or cleaning
“the same.”

For cleaning the flues of steam boilers one or more brushes are mounted on a carriage on wheels, which may be drawn along the flue to scour it. The brushes are pressed by springs against the side of the flue. The brushes may be made to revolve by means of a rod which is revolved to set in motion cogwheels for the purpose, and by this motion of the brushes the machine is drawn along the flue. In the drawings the machines are shown as working on the sides of a cylindrical boiler, the opposite sides of the flue to the boiler being square. The brushes are suitably arranged on the frame.

[Printed, 10d. Drawing.]

A.D. 1860, July 30.—N° 1847.

NEWTON, WILLIAM EDWARD.—(*A communication from John R. Ingersoll.*)—“An improvement in brushes for the hair or other
“purposes.”

“The invention of an improvement in brushes for the hair or
“other purposes, consists in constructing brushes in which the
“bristles are secured round little tubes connected with a reser-

“ voir, the sides on the top of which are made elastic, so that on
 “ exerting a pressure on the same, the hair oil or other substance
 “ contained in the reservoir will be forced out through the tubes
 “ to the bristles, and be by them transmitted or supplied to the
 “ hair in the act of brushing.

“ In carrying out the invention, a reservoir is secured to its
 “ top and about the centre of the brush, and this reservoir is
 “ furnished with a perforated bottom, which communicates with
 “ some of the bristles underneath the reservoir by means of
 “ small tubes, to which the bristles are attached. These per-
 “ forations can be closed by means of a valve which is secured to
 “ the lower end of a screw rod. The top of the reservoir is made
 “ somewhat convex, and so that the same when forced in resumes
 “ its original position. An aperture in the side of the reservoir
 “ serves to introduce the hair oil or other substances to be used
 “ with the brush. When the valve is raised, a gentle pressure
 “ on the elastic top of the reservoir forces the hair oil or other
 “ substance out through the tubes to the bristles.

“ The same principle may be applied with equal advantage to
 “ marking brushes or paint brushes, and in this case all the
 “ bristles constituting the brush are fastened to small tubes, and
 “ they form the bottom of a reservoir, the sides of which are
 “ made elastic, so that by compressing them the paint or other
 “ substance is caused to ooze out through the tubes to the
 “ bristles, the atmospheric pressure on the lower end of the tubes
 “ being sufficient to prevent the paint from oozing out when no
 “ pressure is exerted on the sides of the reservoir. A spiral
 “ spring may be inserted between the sides of the reservoir to
 “ impart to the same the necessary elasticity.”

[Printed, 6d. Drawing.]

A.D. 1860, July 31.—No 1854.

DIXON, ADAM.—“Improvements in knife cleaning machines.”
 Improvements upon No. 2087, A.D. 1857.

1. The brush is formed in two or more segments, so that springs
 may be applied behind them. Leather can then be partly substi-
 tuted for bristles.

2. The knife plate is made with openings large enough to allow
 the bolsters of the knives to pass through. These openings are
 arranged in pairs, with blocks of iron between them. The knives
may thus be arranged in pairs with their edges close together.

3. Linings of bristles are fastened below the knife plate. Through these the knives pass, and they prevent the cleaning powder from coming out.

4. To prevent the machine becoming clogged, small holes are made at the bottom of the cylinder, through which the powder falls into a drawer provided for the purpose.

5. The legs of the standards are made of wrought iron.

[Printed, 10d. Drawing.]

A.D. 1860, August 23.—N° 2026.

COLE, RICHARD JOHN.—“Improvements in the construction of brushes.”

The inventor says :—

“The first part of my invention relates to the ornamentation of head, clothes, and other such like brushes, which I propose forming of wood, ivory, papier maché, horn, vulcanite, or other suitable material, and of various devices, such as crowns, coronets, and other heraldic or armorial devices, religious and other symbols or emblems, ancient or modern architectural ornaments, leaves, flowers, or fruit, and ornamentation generally, to be either carved, pressed, or embossed.

“The second part of my invention consists in forming the handles of brushes either in whalebone, vulcanite, papier maché, pressed horn, or other hard flexible material, the same being distinct from the body or back of the brush, and of such device as to correspond with the ornamentation on the backs, such as foliated backs with intertwined rustic handles; or, in some cases, where the device will not permit of such ornamented character of handle, I use plain-shaped handles, which, for the sake of flexibility, are to be made in pieces, joints, or rings, kept or secured together by a metallic, spiral, or other spring, or a stem of caoutchouc passed through the centre thereof of a tubular form having a small steel rod in its interior, so that when in use they shall yield slightly to any pressure of the hand. These handles are adaptable to any ordinary description of brush, and may be attached or detached as required.”

[Printed, 4d. No Drawings.]

A.D. 1860, September 15.—N° 2251.

NEWTON, ALFRED VINCENT.—(*A communication from William H. Towers.*)—“An improvement in the construction of brooms.”

"This invention relates to that class of brooms principally used in the household, and consists in forming the broom of broom-corn and strips of cane or reeds, so intermingled and combined as to cause the latter through its superior stiffness and elasticity to give a corresponding character to the combined mass, thus rendering the broom both effective in sweeping and durable.

"The broom-corn and strips of cane and reeds may be equally and promiscuously mixed together and laid around and fastened to the handle in the same manner that the broom-corn is ordinarily attached thereto; but the method preferred by the inventor is first to spread a bunch of the strips of cane or reeds around the lower end of the handle or back of the broom, and secure them thereto by a binding wire. The cane or reeds thus secured is next surrounded with a course of broom-corn, which is secured in place by continuing the winding of the same wire around its upper end. Outside this layer or course of broom-corn, and on opposite sides of the handle, are bunched bodies of corn-broom and strips of cane or reeds intermingled. Slight portions of the combined mass being extended equally around the two remaining sides. These bunches are in turn secured over the previously secured courses or layers by means of the binding wire before mentioned. Around this course is equally laid a course of broom-corn secured in like manner to the broom handle; after this the broom is flattened so as to bring the bunches of broom-corn at the edges, and the whole mass of materials is secured together in this flattened state by a cord intertwined and fastened through it in the usual manner."

[Printed, &c. Drawing.]

A.D. 1860, September 19.—N° 2277.

COLE, RICHARD JOHN.—"Improvements in the manufacture of brushes."

The description is as follows:—

"I form the backs of brushes of porcelain, glass, or other suitable substance, and of any desired pattern or device on the external figure. The porcelain, glass, or whatever material it is desired to use, may be either plain, coloured, with a plain tint, or painted in gold colours, or moulded in any ornamental design. Glass may also be moulded the same as porcelain, and ornamented in a similar manner. I also let in or insert into the backs of brushes painted glass, or glass having pictures trans-

“ferred or secured thereto, and thus allowing part of the back, the same being rendered water-tight, so as to allow of the washing of the brush when required. Photograms or photographic pictures, chromo-lithographs, or other suitable pictures may also be used for such purpose, the same in all cases being firmly secured to the under side of the glass, thereby forming an ornamental pattern in the backs of brushes,”

[Printed, 4d. No Drawings.]

A.D. 1860, October 27.—N^o 2632.

ASHBY, JOHN.—“Improvements in apparatus for cleaning grain before grinding, and in dressing the same after being ground.”

“This invention consists, firstly, in the employment for the purposes referred to, of brushes driven rapidly round within a cylindrical or other formed screen or sieve, such brushes being formed with longer bristles, hair, or other material than those hitherto used for such purposes, and being so placed or so made as when thrown outward by the centrifugal force (or by the centrifugal force and their own elasticity combined) to drag or lie upon or against, and wipe the smut and other refuse matters of the unground grain, or the finer parts of the ground grain, as the case may be, through the screen instead of acting, as brushes have heretofore been made to act in such cases, by scrubbing the ground or unground grain against the screen. Thus, instead of making use of brushes for dressing the ground grain, having bristles of hair or other material, limited as heretofore to a length of about two and a quarter inches from the stock in which they are fixed,” the inventor increases “the length as much beyond that limit as is necessary to do away with the ordinary scrubbing action, and to substitute for it the dragging and wiping action referred to.” In some cases “a combination of the two kinds of brushes in one machine” is used. “Otherwise it may, under some circumstances, be found desirable to attain the dragging and wiping action referred to by hanging brushes of the ordinary construction upon suitable joints or flexible connections.”

“Secondly, in the construction of brushes for cleaning grain, or dressing it after being ground with wrought iron or other metallic stocks.”

A machine is figured on the drawing, similar to one described in the Specification of No. 2388, A.D. 1857, but having brushes arranged alternately with beaters. In the latter machine no brushes are employed.

[Printed, 10d. Drawing.]

A.D. 1860, October 31.—N° 2661.

GHISLIN, THOMAS GOULSTON.—(*Provisional protection only.*)
—“Preparing, applying, and adapting certain articles of vegetable production called eiklonia buccinalis, proteaceæ, juncus serratus, juncus trista, and amaryllideæ, to further new purposes of manufacture.”

“A marine plant which on account of its peculiarity of form I call the algæ trumpata (eiklonia buccinalis of botanist)” is used, amongst other purposes, for “ornamenting all kinds of fancy brushes.” Also “the second article which is known by botanists as the juncus trista” is used “either alone or mixed with other material” for making brushes of various sorts. No description of the method of manufacture is given. Reference is made to N° 1049, A.D. 1857.

[Printed, 4d. No Drawings.]

A.D. 1860, November 29.—N° 2935.

FANSHAWE, JOHN AMERICUS, and JAKUES, JAMES ARCHIBALD. — “Improvements in brushes and other scrubbing and rubbing surfaces.”

Flesh brushes and scrubbing brushes of various sorts are made of vulcanised rubber, and have projecting rings with sharp edges to form the rubbing surfaces. These rings are generally concentric, but any other similar arrangement may be made. The brush may have a rigid back, of hard rubber or other material. They are preferably moulded, but other modes of manufacture may be adopted.

[Printed, 10d. Drawing.]

A.D. 1860, December 4.—N° 2972.

GREENWOOD, BENJAMIN.—“Improvement in the manufacture of brooms and other brushes.”

Bristles are inserted in a half open tube, after having had their ends dipped into melted pitch or similar composition. The tube

is then closed up, so as to hold the bristles firm. The tubes holding the bristles are forced into grooves cut in the stock of the brush, these grooves being made narrower at top than below.

For a circular brush a strip of paper, calico, or other material may have bristles firmly fastened on it; the strip is then placed in a helical groove cut in the stock.

[Printed, 10*d.* Drawing.]

1861.

A.D. 1861, January 29.—N° 233.

FLEMING, WILLIAM FREDERICK.—“An improvement in
“bottle cleaners.”

“This invention relates to brushes for cleaning or cleansing
“the interior of bottles, jugs, jars, or other vessels of similar
“form, and the improvement consists in having the handle or
“stem twisted or formed into a screw with a nut thereon, and a
“cap or knob at the end, in which the handle or stem is free to
“rotate. By holding the knob in one hand and the nut in the
“other, and moving the hands to and from each other alternating
“or reversing, rotary motion may be given to the said brush.”

[Printed, 6*d.* Drawing.]

A.D. 1861, February 23.—N° 464.

DURIEZ, AUGUSTE, fils, and EMSLEY, SIDNEY.—“Im-
“provements in machinery or apparatus for preparing fibrous
“materials to be combed or spun.”

The parts referring to this series are included in the two
following extracts:—

“Firstly, in addition to the ordinary fluted pressing rollers, we
“use a porcupine roller or comb, the points of which are oppo-
“site to those of the gills or fallers, that is, point towards point,
“and an endless band or apron which presses against the porcu-
“pine causes the fibrous material to be drawn in or through the
“pins thereof; we also employ brushes which strip the fibrous
“materials from the porcupine, and force or cause it to penetrate
“into the gills or fallers, by means of which we obtain a limited
“resistance in the drawing of long fibres, instead of an absolute
“one, thus preventing the fibres being broken.”

“ Fourthly, we use revolving brushes acting in the broken lines of gills. This apparatus is composed of several brushes with stud pins at their extremities, to allow them to revolve freely and present their bristles downwards, and penetrate into the pins carrying the fibres with them. The brushes in descending also come in contact with the pins of the feeding porcupine, so as to keep then constantly clean, and prevent the formation of laps.”

[Printed, 10d. Drawing.]

A.D. 1861, March 9.—N° 590.

DAVENPORT, THOMAS WILLIAM, and COLE, SAMUEL.—
“ Improvements in the manufacture of holders or handles for pens, pencils, and artists’ or painters’ brushes.”

These holders are made by twisting into a tube any flexible material “ which will admit of being slit into thin strips,” and so coiled up. Thin strips of metal may be used. The strip may be saturated with adhesive material, and afterwards varnished. A plug of wood may be inserted in the end.

[Printed, 4d. No Drawings.]

A.D. 1861, March 16.—N° 669. (* *)

PRINCE, ALEXANDER.—(*A communication from Julius Imme.*)
—“ An improved electro-galvanic friction brush.”

“ A strip of leather is bent in a semicircular form and attached at its ends to an oblong wooden frame. In the leather are to be inserted pins of silver-plated wire about half an inch in length, stuck in close rows; these pins are provided with heads, at the back of which is placed a curved zinc plate in close proximity to the pin heads and touching every one. The ends of the zinc plate rest upon a plain polished copper plate, which is fastened in the before-mentioned wooden frame. Against this copper plate is laid a piece of felted cloth, succeeding which is a polished zinc plate, to which is added a polished copper plate, and then another piece of felted cloth, and lastly a polished zinc plate. The felted cloths are to be taken out and dipped into salt water, they are then replaced with the plates, in the order before-mentioned, when the galvanic current will pass through the curved zinc plate into the pins. The brush is to be held so that the hand touches the last zinc plate, the body coming by that means in contact with the zinc pole. Then by

“ brushing another part of the body (the copper plate being brought into contact with the body) the electro-galvanic chain will be closed by this operation, and the current will pass through the body. Should one person be operated upon or brushed by another, the chain will then be simply formed by brushing with one hand and placing the other hand on the body of the person to be operated on.” The points of contact of the polar surfaces with the body should “ be made wet with salt water.”

[Printed, 6d. Drawing.]

A.D. 1861, March 23.—N^o 733.

LOYER, GEORGE JOHN BAPTIST.—(*A communication from J. Lemoine.*)—(*Letters Patent void for want of final Specification.*)—“ Irrigating or self-supplying water brushes, brooms, and sponges.”

“ The handle of the water brush is perforated in its entire length, which permits the water to reach the brush and to flow from the head, it being drilled with small holes near each tuft of hair or other material of which it is made. The back of the brush head is covered by a piece of thin wood or metallic plate.

“ A gutta percha, india-rubber, or pipe of any other flexible material is adapted, one end to a water tap, the other end to the handle of the brush through which flows the water required. At about two or three inches from the end of the tube adapted to the brush handle is a small cock made of wood, brass, or other material, by means of which the supply of water can be increased, diminished, or entirely stopped according to requirements, and the other end of the tube is arranged so that it may be easily adapted to the tap whence the water is taken.”

[Printed, 4d. No Drawings.]

A.D. 1861, March 30.—N^o 788.

NAPIER, WILLIAM DONALD.—“ Improvements in the manufacture of rubbers for the human teeth and gums.”

“ Vulcanized india-rubber is used in constructing a pointed or edged surface for cleaning the teeth, a plain or undulating surface for rubbing the gums, and a surface of either large or small corrugations for the purpose of rubbing both teeth and gums. All the above-mentioned surfaces are made as soft as possible

" *combined with turpentine.* This dental rubber may be made
 " *impregnated in various portions* in or any of the surfaces
 " *horizontal.* The *surface* in each case may be of hard vulcanite,
 " *in a mass,* or a *thin material* which will not be injured by
 " *the use of it,* which *the compound* of india-rubber and sulphur
 " *when in contact with materials,* is subjected in order to obtain
 " *the change,* in the *handles* of such or other materials may be
 " *adversely affected.* The rubbing surface for the teeth is pre-
 " *ferred to consist* of numerous small round pointed or wedge-
 " *like projections,* whilst the surface or surfaces for rubbing the
 " *gums,* it is preferred should be smooth, and either plain or un-
 " *derlying.* The surface for rubbing either teeth or gums is made
 " *with large or small corrugations.* The proper compound of
 " *india-rubber and sulphur* is placed in a suitable mould, and the
 " *head or end* constituting the rubber is moulded therein, the
 " *end of the handle* being suitably formed and introduced into
 " *the mould,* in order that the head may be moulded thereon.
 " *Heat* is then applied, as is well understood, to produce the
 " *change in the india-rubber* known as vulcanized india-rubber."
 [Printed, &c. Drawing.]

A.D. 1861, April 6.—N^o 853.

GILBERT, THOMAS GOULSTON.—(*Letters Patent void for want of final Specification.*) — "Preparing, applying, and adapting
 " certain vegetable productions called *eiklonia buccinalis*, *protea-*
 " *ow*, *juncus serratus*, *juncus trista*, and *amaryllidea*, to further
 " new purposes of manufacture and certain modes to effect the
 " same."

" A marine plant or fungi, known to botanists as the *eiklonia*
 " *buccinalis*," is employed for "veneering, coating, mounting,
 " inlaying, and ornamenting purposes." Amongst other articles
 it may be applied to brushes. It is mentioned again that it is
 suitable "for making matting, carpet, street, stable, marine and
 " other brooms and brushes," "alone or mixed with other
 " material." No method of preparation is mentioned. Reference
 is made to No. 1049, A.D. 1857.

[Printed, &c. No Drawings.]

A.D. 1861, April 26.—N^o 1045.

COLLIER, RICHARD JOHN.—"Improvements in ornamenting the
 " backs of brushes."

The inventor says :—

“For the purpose of ornamenting the backs of brushes, I employ pictures, transfers, paintings, or enamels, either of glass, porcelain, or other suitable substance, and for which Letters Patent were granted to me on the Nineteenth day of September, one thousand eight hundred and sixty, numbered 2277; and which said pictures or paintings, I apply, fix, or attach to the backs of brushes by suitable metallic or other plain or ornamental frames, edgings, or borders, or the entire backs may be so ornamented, leaving a space or opening in the centre for the introduction of the before-mentioned pictures.

“In cases where it is desired to change the subject of the picture or to insert various portraits from time to time, the frames or borders are to be detached by means of screws; or the frames may be made with a hinge to open like a locket.”

[Printed, 4d. No Drawings.]

A.D. 1861, May 6.—N^o 1140.

ELLIS, GEORGE HENRY.—(*Provisional protection only.*)—“Improvements in apparatus for cleaning boots and shoes, which are also applicable for cleaning knives, forks, plate, and other articles.”

A set of cylindrical brushes is mounted on a spindle attached to a table. The brushes may have solid stocks, or may be made in segments so as to be removeable. They are disposed at convenient distances apart along the spindle. A stronger brush is fixed between two of the others for removing dirt from the boots. This brush may also be mounted at any other convenient part of the spindle. The spindle is driven by a fly-wheel which is worked by a treadle. The driving band is carried back over a stud pulley to keep it out of the way. Slides are arranged to cover the brushes, and prevent dirt from flying about. There may be two sets of brushes. The blacking brush is on a separate axis, and is revolved at a slower rate. It is mounted loosely in its bearings and can be pressed in contact with a blacking roller which receives motion from the fly-wheel, and transmits it to the brush. When the brush and roller are not in contact, the form remains motionless. Or the blacking brush may be on the same spindle as the other brushes. Blacking may be allowed to drip on it from a receptacle.

The brushes may be mounted on the crank axle, and may be V-shaped.

For cleaning knives a similar apparatus is used, except that rollers faced with leather are used instead of brushes. A vessel containing plate powder is arranged to supply these rollers.

A seat may be attached to the apparatus.

[Printed, 4d. No Drawings.]

A.D. 1861, May 17.—N° 1265.

PATEY, WILLIAM, Junior, and RICHARDSON, JAMES.—(*Provisional protection only*).—"Improvements in the manufacture of brushes."

The improvements relate to the manufacture of brushes with glass backs, and apply principally to "nail, tooth, hair, and "clothes brushes." In the bottom of the mould in which the glass is run, is a series of holes, corresponding with those to be formed in the stock. The top of the mould is furnished with a corresponding series of pins. There is also a thin perforated metal plate which fits on and slides over the pins. On the glass being run into the mould, and the mould closed, the pins are forced through the glass; when the mould is opened, the perforated plate keeps the glass in position while the mould is being withdrawn. The bristles are fixed in the usual way. A back may be moulded, to be fixed on in any convenient manner. The holes may be made only partly through the stock, and channels cut down to them from the back, if preferred. If the bristles are to "splay," the outer rows of holes must be bored in the proper slanting direction. Shaving brushes are made in two pieces, one a "ferrule piece," to receive the bristles, with an opening enlarged at one end, and the other a handle "of a capsule form."

[Printed, 4d. No Drawings.]

A.D. 1861, June 5.—N° 1412.

DODSWORTH, MARTIN, and SMITH, WILLIAM.—(*Provisional protection only*).—"An improved boot and shoe cleaning machine."

The inventors "employ a framework, consisting of cast iron or wood, to which is applied a single or double crank and treadle. "The above crank spindle is for the purpose of driving a semi-detached wheel consisting of three segments, or more or less, "as may be required, according to the size of the machine. On "the segments are placed a given number of semi-detached

“brushes, consisting of hard brushes, blacking brushes, and brightening or polishing brushes. The hard brushes are fixed on the fly-wheel by iron screws passing through the back of the brushes into a bevil flange at an angle of forty-five degrees, more or less, according to the size of the fly-wheel, which fly-wheel contains the three sets of brushes. The blacking brushes and brightening brushes are fixed in the fly-wheel by the same means as the hard brushes. The hard brushes on the left hand, the blacking brushes on the right hand, and the brightening or polishing brushes in the centre. The crank shaft passes through the fly-wheel, and runs on two dead centres, with two regulating screws through the upright standards, which forms a support for the table surrounding the brushes on the back and on the sides, the front being open. The back of the machine is formed of a wooden frame, which combines the two upright standards with the top table. The treadle is hinged on two centres with regulating screws, to which is attached the connecting rod from the crank shaft to put the machine into motion. When the brushes revolve, the boot or shoe to be cleaned must be, firstly, applied to the hard brushes; secondly, to the blacking brushes; and, finally, to the brightening brushes.”

“A separate machine supplies the brushes with liquid blacking by means of a small wooden roller, covered with thick felt, and working on centres supported on two upright standards from the side of the trough containing the blacking; a piece of felt is placed on the bottom of the trough to check the waste. By means of a spring a supply of blacking can be had at will. The machine is fixed on the table at the back part of the revolving brushes, and is self-feeding.”

[Printed, 4d. No Drawings.]

A.D. 1861, June 8.—N° 1458.

WORRALL, JOHN MAYO, and LAWRENCE, THOMAS.—“Improvements in machinery or apparatus for brushing, raising, and dressing the surfaces of cut pile and looped fabrics.”

“The improvement consists in a novel arrangement of mechanism wherein the fabric passes over the periphery of a cylindrical drum or bed, the brushes used for raising and dressing being helically formed and arranged around such drum at certain suitable intervals to operate upon the fabric as required, the

" drum forming a bed for the fabric at each point where the brushes are in contact therewith, by which means the processes are more perfectly performed. Or, if preferred, each brush may be provided with a separate drum, cylinder, or roller."

[Printed, 1s. 3d. Drawings.]

A.D. 1861, June 8.—N^o 1467.

McKAY, JAMES.—*Provisional protection only.*—"Improvements in apparatus or means for cleaning chimneys or flues."

A pulley is fixed at the top of the chimney. Over the pulley a chain is passed, to the ends of which a circular brush is fixed. The chain and pulley are fixtures. By this means the brush can be drawn up and down. A weight attached to the brush aids its descent. A cloth is to be placed in front of the grate, having openings through which the arms of the operator pass. The brush may be formed of whalebone or bone.

[Printed at. No Drawings.]

A.D. 1862, July 4.—N^o 1771.

LUDFORD, WILLIAM HENRY.—"Improvements in the construction of brooms and scrubbing brushes."

The inventor describes his method of manufacture as follows:—

"In making a broom, according to my invention, I make a hollow or trough in the under side of the head of the broom, and I take bristles or fibres of more than twice the length of the bristles of the ordinary broom, and I place the said bristles or fibres across the said hollow or trough. I then insert a block or wedge in the said hollow or trough, the said block or wedge carrying before it the bristles or fibres laid across the hollow or trough. By the insertion of the said block or wedge the bristles or fibres are doubled and arranged on either side of the hollow or trough. By means of pins or screws passed transversely through the head of the broom and block or wedge, the said block or wedge is secured in its place. The bristles or fibres are thus held securely in the grooves formed between the said block or wedge, and the sides of the hollow or trough."

"When a large quantity of bristles is required in the broom, tufts or bundles of bristles may be fixed in holes made at short distances apart in the block or wedge. When the broom is

“ broad, or the bristles are required to be thick, two or more grooves, troughs, or channels may be made longitudinally in the broom head, in which grooves or troughs, the rows of bristles or fibres are secured in the manner already described.

“ In the case of scrubbing brushes the bristles are made shorter than those for brooms, and several channels or troughs are made side by side in the head of the scrubbing brushes, and the bristles are fixed in the said channels or troughs in the manner already described with respect to brooms.”

The inventor prefers to “ make the grooves, troughs, or channels longitudinally in the broom or scrubbing brush head,” but “ where the broom or scrubbing brush is broad, they may be made transversely in the broom or brush head, and the bristles or fibres secured therein by means of blocks or wedges.”

[Printed, 6d. Drawing.]

A.D. 1861, July 11.—N^o 1753.

WILKINSON, WILLIAM.—(*Provisional protection only*).—“ Improvements in manufacturing and ornamenting brushes.”

Two flat surfaces of wood or other material are fastened together. “ A piece of waterproof cloth or other fabric ” is then glued on the back; the superfluous cloth is cut off, and the edges and remainder of the brush stained. Plates of glass, china, etc. are affixed to the backs of brushes. The plates may be stained or silvered, and the stain removed to make the design. The plates may be engraved, and the silver protected with paint, etc. Embossed metal plates may be used. The whole back of the brush may be of metal and riveted on. Cut pile or other velvet fabric may be attached to brush backs, for brushing silks, etc. Sponge and wool may also be used in a manner not described, and brushes may be made of leather sprinkled with emery, or emery may be placed on the wood. These are available for knife cleaning apparatus.

[Printed, 4d. No Drawings.]

A.D. 1861, July 18.—N^o 1812.

COLES, GEORGE, JAKUES, JAMES ARCHIBALD, and FANSHAW, JOHN AMERICUS.—“ Improved apparatus to be used for brushing and dressing cloth.”

“ The invention consists in adapting to machines for brushing and dressing cloth, a roller or rollers provided on their

“ peripheries with elastic-ribbed edges, which, when the rollers are set in motion, will rub, brush, or dress the surface of the cloth. These ribbed rubbing edges are arranged helically round the rollers, but the helical coils commence at or near the middle of the rollers, and are arranged in opposite directions, so that when acting on the surface of the cloth, they may keep the same spread out or distended in a lateral direction from the centre. The elastic-ribbed rubbing edges are made of india-rubber, but the peculiar form, dimensions, and arrangement of these working parts must depend upon the nature of the material to be operated upon, and the effect that it is desired to produce.”

[Printed, 10d. Drawing.]

A.D. 1861, July 26.—N° 1877.

WIGFALL, WILLIAM.—“ Improvements in the manufacture of brushes and brooms.”

“ The invention relates to an improved mode of securing the bristles, bass, or fibres into the head, stock, or handle of a brush or broom, and consists in inserting a peg amongst the bristles, bass, or fibre, and into the hole which receives them, so as to act as a tightening wedge thereon, and thereby firmly secure them in their place. These pegs may be used with pitch, marine glue, or other cement, or they may be inserted dry and may be composed either of wood metal, or any other suitable material. They may also be used in conjunction with ruts or grooves, one or more pegs, pins, or wedges being run through or forced into the whole row of knots, parcels, or bunches of bristles, bass, or fibre in the head or stock of the broom or brush.”

[Printed, 6d. Drawing.]

A.D. 1861, September 5.—N° 2214.

PATEY, WILLIAM, junior, and RICHARDSON, JAMES.—(*Provisional protection only.*)—“ Improvements in the manufacture of shaving brushes.”

Shaving brushes are made with glass handles, consisting of a tube with the opening at one end smaller than at the other. The bristles are drawn through from the larger end and cemented in

position. The handle may be left open, or closed with a plug. Or the bristles may be inserted in a ferrule-piece which is afterwards fixed to the handle.

In making "the turn-back brush" the ferrule is not fixed, but fits into the handle, so that it can be withdrawn and placed within the larger part of the handle. A cover is fitted to close up the handle.

[Printed, 4d. No Drawings.]

A.D. 1861, September 13.—N 2274.

DELAMARE, WILLIAM HENRY.—"Machine for purifying and "peeling corn."

A machine is described in which corn is acted upon by a cylinder or cone revolving within a case. Both cylinder and case have roughened surfaces, and the corn passes through the space between them. The corn may be further treated by means of a similar cylinder or cone covered with brushes, or one end of the first-named cylinder may be covered with brushes.

[Printed, 8d. Drawing.]

A.D. 1861, September 16.—N^o 2300.

HORSLEY, SAMUEL, and JONES, EDWARD HOBSON.—"Improvements in apparatus for cleaning and polishing boots, shoes, "and other coverings for the feet, partly applicable for cleaning "plate and other articles of domestic use."

"This invention relates to that class of cleaning and polishing "machines where circular brushes are made to revolve by treadle "or other means, and consists, firstly, in constructing or making "the brushes so that when they are placed in position on the "spindles or shafts they will form one continuous brush, the "periphery of which will be alternately concave and convex; "and, secondly, in supplying the blacking or other polishing "substance to the brushes by discs, arms, or vanes fastened to a "spindle resting on a framing placed in the receptacle or trough "for containing the said blacking or other polishing material, and "which discs, arms, or vanes can be brought into contact with "the brushes at pleasure to communicate the required quantity "and no more."

[Printed, 8d. Drawing.]

A.D. 1861, October 16.—N° 2575. (* *)

ADAMS, JOHN JAY.—“A new and useful improvement in the
“ manufacture of flexible back brushes for cleaning and dusting
“ horses and other animals.”

The body of the brush is constructed of one or more pieces of leather or other suitable material united by cement. The proper number of rows of holes are punched out; one end of a wire is fastened to the top of the body; the loose end is passed in a doubled state, so as to form a loop, down one hole; a bunch of bristles is placed in the loop; the loose end is drawn upwards, forcing the bristles by the middle into the hole; and so on, until all the rows except the outside one are filled. The hand or cap plate is now cemented to the body: holes are made through both; and the outside row of bristles is inserted in the manner before stated. By this process the outer row and the leather portion are secured at one time, thus dispensing with the line of sewing required by the old method. The band, through which the hand passes, is attached in the ordinary way.

[Printed, 6d. Drawing.]

A.D. 1861, November 13.—N° 2859.

CONEY, FREDERICK.—“An improved stock for brooms.”

The object of the invention “is to obtain the equivalent of
“ two separate brooms upon one stick or handle.” The stock is made triangular in section. Two of the sides carry bristles of different sorts, and the handle is inserted in the third side.

[Printed, 6d. Drawing.]

A.D. 1861, November 15.—N° 2880.

STAUFEN, WERNER.—(*Provisional protection only.*)—“Im-
“ provements in the manufacture of brushes, and in preparing
“ certain vegetable fibres for such and other uses.”

The fibres of an Indian plant, the *arenga saccharifera*, are used for making brushes. The fibres are collected from the dry leaves. They may be washed, soaked in an alkaline solution, and dyed, oily matters being introduced into the dye, or they may be used without preparation.

[Printed, 4d. No Drawings.]

A.D. 1861, December 13.—N° 3137.

APPLEBY, HENRY, and HARRISON, HENRY.—“Improvements in machinery for boring wood and other materials used in the manufacture of brooms and brushes.”

“In order that numerous holes may be simultaneously bored in a piece of wood or other substance to receive tufts or quantities of bristles or other substances used in the manufacture of brooms and brushes, a number of suitable drills or boring tools are employed, each mounted separately in a socket or holder on the end of a stem, which is so formed in parts connected by universal joints, as to admit of a part of the stem being at an angle to the plane in which the drill or boring tool carried thereby works. At that end of the stem where the boring tool is applied, a perforated plate is stationed, having in it a number of holes corresponding with the holes desired to be bored in the piece of wood or other material, and in each of these holes there is a socket for a boring tool, and each socket has motion communicated to it by a stem constructed as above described. From this plate the stems diverge from one another, and get further and further apart, when they pass through sockets which turn in holes in another plate. To the plate last mentioned a lever is applied, or other provision is made to move it forward, together with the stems of the boring tools, so as to advance the boring tools into the wood or other material held to the points of the boring tools. The back ends of the stems are supported in any suitable bearings, and each of the stems has on it a pulley or drum to receive a band or strap driven by a cylinder, which is put in motion by a steam engine or other power. By thus having the stems of the boring tools in parts connected by universal joints, the boring tools may be caused to be worked very close together, whilst the stems where they are driven are at a convenient distance apart to admit of their being driven. The plate which carries the boring tools may be changed from time to time according as the work to be done requires to be varied.”

[Printed, 10d. Drawing.]

1862.

A.D. 1862, January 21.—N° 159.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Victor Ferdinand Jeuneau.*) — “Improvements in street and road sweeping machines, parts of which are applicable to the separation of liquid from solid substances.”

On an axle supported by two wheels is mounted a frame which carries two drums. Over these drums passes an endless chain carrying brushes. The drums are mounted in such a way that the brushes work at a suitable angle for sweeping the mud, etc., up an inclined plane to a receiver. The drums are actuated by suitable gearing from the supporting wheels. At the sides brushes are fixed for directing the mud, etc., from the sides to the centre of the machine. The receiver is a separate vehicle, and is divided into three compartments by sloping divisions. The stones remain in one, the sand in the second, the water in the third. By the addition of a rose, the water may be used for watering the roads.

[Printed, 10d. Drawing.]

A.D. 1862, March 11.—N° 657.

CAMP, EDWIN GILLARD.—“Improvements in brushes or apparatus for brushing.”

The invention is described as follows by the patentee :—

“My apparatus for brushing is specially designed for brushing the human hair in a new and improved manner, and is intended specially for the use of hairdressers, but is also applicable for use in baths as a skin brush.”

“The apparatus consists of a shaft with a loose handle at each end, a fixed pulley for receiving motion, and a drum on which the brushes are mounted. In the manufacture of my brushes, I take the materials now usually employed for that purpose. viz., bristles, split whalebone, and metal wires. When metal wires, I magnetise them or not while in use. For the purpose of causing my brushes to rotate, I drive them by a belt passed round the pulley on my brushing apparatus, and round fast and loose pulleys driven by hand or by steam or other power. To use the brush I hold the apparatus steadily with both hands,

" and direct it to any and all parts of the hair in whatever position the head may be held, the brush being made to rotate all the time. For the convenience of washing I fasten the brushes to the drum by springs, which admit of their being removed; the drum itself is not fixed to the shaft, but glides off and on, and is carried round by a lock-and-key adjustment."

[Printed, 6d. Drawing.]

A.D. 1862, March 26.—N° 831.

JOHNSON, JOHN HENRY.—(*A communication from Claude Dumas.*)—"Improvements in apparatus for cleaning tubes and flues of steam boilers and similar conduits."

Brushes for this purpose are made of "piazava" or "bastin," a South American rush, with or without bristles or wires. It is preferred to manufacture the brushes by placing the fibres between the two lengths of wire, and twisting the wire together. By this means the brush assumes a spiral form. The rods may be welded at the end, and screwed into a handle.

[Printed, 8d. Drawing.]

A.D. 1862, April 10.—N° 1037.

FOX, WILLIAM.—"Improvements in the manufacture of brooms and brushes."

" This invention has for its objects improvements in the manufacture of brooms and brushes. For these purposes flat steel wire or narrow strips of thin sheet steel are used in a hardened and tempered state. These steel wires or steel strips are fixed together, and to a suitable head or block, as hereafter described. It is preferred to employ flat steel wire, hardened and tempered, which is afterwards cut into suitable lengths, according to the purpose to which the broom or brush is intended to be applied, and the strength of the wire will also be varied." "One end of these pieces or lengths of tempered flat steel wire is coated with tin, and then a series of the pieces are placed edge to edge with their coated ends in a narrow length of bent sheet metal wide enough to receive such pieces; these parts are to be temporarily held together, and dipped into a bath of soldering metal, so that the same may fill the trough, and solder and fix the ends of the pieces of wire to each other and to the trough, or the soldering of the ends to each other and to a trough-like

“ or other suitable plate may be otherwise performed. Any number of these rows of pieces of flat tempered wire, or of narrow strips of thin tempered steel, may be fixed together in any convenient manner; but it is preferred that their lower and soldered parts should be put side by side, and any number thereof put into a trough of sheet metal, and held therein till the whole have been dipped into a bath of suitable soldering metal, and thus fixed to each other and to the trough. In some case sheet metal is employed, cut into narrow strips, except at one edge, where the sheet is not cut through, or the sheet may be cut on each side of it into narrow strips, leaving an uncut portion in the middle, so that the narrow strips may come on each side of the uncut portion. The sheet of strips thus produced is to be hardened and tempered, and then any desired number of such sheets are in a condition to be fixed together by soldering several of them side by side, or by rivets or otherwise. In some cases the flat tempered steel wire, or tempered strips of steel, are corrugated or bent into a trough-like section at their inner ends, so as to give greater stiffness thereto, whilst the outer ends being left flat, the strength of each strip is modified.”

[Printed, 8d. Drawing.]

A.D. 1862, April 21.—N° 1163.

DIXON, ADAM. — (*Provisional protection only.*) — “ Improve-
ments in knife and fork cleaning machines.”

The improvements are both in “ rotary ” and in “ cylindrical ” knife cleaners. In the first, the central portion of the disc is filled up by a block or tube, “ against which the knife or knives when inserted for cleaning coming in contact are forced and retained in a tangential instead of a radial line across the polishing discs.” By this means the joints of the knives are as well cleaned as the other portions of the blade. Cleaning powder may be introduced into the central tube, and distributed through perforations. The polishing strips of leather are fastened in grooves cast in the discs, having ridges behind, against which the edges of the strips abut. A strap of leather is bound round the circumference of the discs, and the bolsters of the knives rest against it. A catch is used to hold the knife firm, and “ counter-act the tendency imparted by the tangential line ” to push it out of the machine. A similar machine may be used for cleaning

forks, but bristles instead of leather strips must be used for cleaning purposes. "An adjustable guide, clipping the handle of the fork," is used to prevent the fork from being drawn into the machine.

The improvements in cylindrical cleaners "consist in building up the outer cleaning case with overhanging pieces securely fastened to a revolving plate or cylinder. These pieces may be either solid or hollow, the latter preferred, as then they may be made to act as lifters and mouths for the cleaning powder. On the extremity of the overhang of these pieces or mouths, a retaining ring is fastened so as to bind them all together, and in the spaces thus formed between the revolving back plate and the front retaining ring, and between the pieces and mouths themselves, work segments of circles carrying the polishing strips or bristles." These segments are pressed by springs towards the centre of the machine. They are of wood or, preferably, of cast iron like the discs in the first described machine. Ledges of leather may be used to prevent the knives pressing too far in, but the inventor prefers a "guard ring" with slots for the knives, and "supports for the back edges of the blades close to the handles."

[Printed, 4d. No Drawings.]

A.D. 1862, April 30.—N^o 1279. (* *)

STAUFEN, WERNER.—"A new material to be used in the manufacture of brushes, and also applicable to the purposes for which bristles, horsehair, and human hair are now used."

The patentee says, "I take the fibres of the tree known to botanists as the 'arenga saccharifera,' which is chiefly found in India and the Eastern Islands, and I treat them with a hot alkaline solution in order to remove the resinous matter, after which the fibres are dyed, dried, and sorted into lengths and thicknesses." "The coarser fibres are selected to be used in place of bristles, or in combination with bristles, in the manufacture of brushes in the same manner as bristles are now employed."

[Printed, 4d. No Drawings.]

A.D. 1862, June 18.—N^o 1801. (* *)

NEWTON, WILLIAM EDWARD.—(*A communication from Pierre Nos d'Argence.*)—"Improvements in electrical brushes."

The "box or frame" of the brush contains an induction coil with adjustable core and vibrating armature, also a galvanic battery. The wires "forming the brush are set in a sheet of caoutchouc, and are brought into connection with the current by the interposition of a wire gauze." "The cover or handle of the brush is either metallic, or is provided with a metal conductor, so that the operator's hand forms a part of the circuit."

The battery "consists of a gutta percha vessel provided with blocks of carbon and zinc plates, and a space to contain the chemical substance, which in this instance is the deuto-sulphate of mercury. The battery and its accessories are covered up and enclosed by a lid, which is secured in such a manner that no liquid can escape therefrom, so that the brush may without inconvenience be held in any desired position."

[Printed, 8d. Drawing.]

A.D. 1862, June 23.—N° 1843.

MCKENZIE, HUGH, and RAMSAY, PATRICK.—(*Provisional protection only.*)—"Improvements in cylindrical or circular brushes or rollers for various manufacturing machines."

"This invention has for object to produce an improved cylindrical or circular surface, which, according to the velocity of rotation imparted to it, will have a brushing action or a frictional elastic adhesion, and which is susceptible of useful application in various manufacturing machines wherein rotating brushes or rollers are required.

"The improved surface is produced by fixing short pins or projections of elastic rubber, either vulcanised or unvulcanised, in the cylindrical or circular surface of the rotary brush or roller, and this backing surface may consist of uncovered wood or other hard substance, or it may have a covering of elastic rubber or other like material, through which the rubber pins are made to project."

[Printed, 4d. No Drawings.]

A.D. 1862, July 9.—N° 1973.

GILBEY, ALFRED.—"Improvements in apparatus for washing and cleansing bottles."

"The invention consists of a series of brushes mounted upon a suitable frame, each fixed upon a hollow spindle, which, with the brush, revolves in the inside of a bottle to be cleansed."

“ Through these hollow spindles, and by means of a general
“ supply pipe with which each one communicates,” a supply
of water “ is carried into the inside of each bottle, and by
“ the action of the brushes revolving is used to cleanse the
“ inside of it. The bottle is placed slightly inclined from the
“ horizontal plane, its mouth falling into a hollow metal boss
“ through and upon which the hollow spindle is mounted, and,
“ with the brush surrounding it is passed into the interior of
“ the bottle. The bottom end of the bottle is laid upon a sliding
“ seat so as to regulate its position. The slide is held to its place
“ by means of a spring, so that the bottle is steadied and held in
“ its proper position during the operation. The hollow spindles
“ with the brushes are caused to revolve by means of rollers or
“ pulleys and straps or by any other well-known motion. When
“ complete the frame upon which the whole is mounted is
“ arranged so as to form a trough to receive the dirty water as it
“ comes from the bottles after and during the operation.”

[Printed, *8d.* Drawing.]

A.D. 1862, July 25.—N° 2113.

ROBERTSON, PETER.—“ Improvements in producing brush-
“ ing or frictional surfaces.”

“ This invention relates to the production of brushing or
“ frictional surfaces of vulcanised or manufactured rubber in an
“ improved manner, and it consists in moulding the rubber in
“ sheets of convenient size, the moulds being shaped so as to
“ produce on one side of the sheet a series of short projecting
“ points or pins, which points or pins form the actual brushing
“ or frictional surface. The sheets formed in this way are fixed
“ upon rollers, or upon flat or more or less curved backs accord-
“ ing to their intended use. The rollers or other articles formed
“ in this way may be used for brushing, that is, for cleaning
“ or polishing, or they may be used where an elastic frictional
“ action is required, as is the case in numerous manufacturing
“ machines.”

[Printed, *8d.* Drawing.]

A.D. 1862, August 2.—N° 2190.

GRAY, JAMES.—“ Improved arrangements for cleaning ships’
“ bottoms, and for preventing the fouling thereof.”

A brush is to be drawn from stem to stern of the ship by a rope. The rope is worked by a windlass on deck, from which it passes to a pulley at the stern, thence to one lower down on the sternpost, and so along the side of the vessel to similar pulleys at the bows and back to the windlass. The guide pulleys at the bows and stern are adjustable as to height. An additional guide pulley may be fitted amidships if required. The brush may be of bristles, wire, or india-rubber. The bristles may be set obliquely outwards at the sides. Thin blades of metal may be substituted for the bristles. The brush may be made with an elastic back. It is attached to the rope by short stays from its ends.

In a modification, grooves may be made in the ship's side, and the brushes arranged to fit them. Or the brushing action may be made vertical or inclined instead of horizontal.

[Printed, 10d. Drawing.]

A.D. 1862, August 14.—N^o 2287.

MARQUES, Don PELEGRIN.—(*A communication from Antonio Blanco y Ramis*).—"Improvements in apparatus for cleaning the bottoms of ships and vessels."

"The apparatus is formed of two metal foundation plates, one of which supports two cylinders and pistons, the other being provided with a strong brush or scraper; these plates contain also a space inclosed by a sheet of india-rubber or gutta percha, which space communicates with a force pump on the deck of the vessel by means of india-rubber tubes.

"The piston rods from the cylinders are attached to the brush or scraper, and the cylinders are supplied with compressed air from the pump by means of tubes, by which means a reciprocating lateral motion is given to the brush or scraper, which is pressed firmly against the sides of the vessel by means of the pressure of air in the space enclosed by the india-rubber.

"The apparatus is to be suspended from the deck of the vessel by a rope or chain, and a vertical reciprocating movement may thereby be communicated to the apparatus, in order to perfect the operation of cleaning or scraping the bottoms of ships and vessels."

[Printed, 10d. Drawing.]

A.D. 1862, August 23.—N° 2356.

HINKS, JOSEPH, and DIXON, ADAM.—(*Provisional protection not allowed.*)—"Improvements in brooms and brushes, and in the mode of fastening brooms, brushes, and mops to their handles (or stails)."

The inventions consist of;—

"First, making the stocks or heads used for brushes and brooms of a triangular shape, by which a saving in timber is effected, as the triangular stocks can be cut one out of another out of square or plank timber, or a cylindrical block or stock can be cut into three, four, or more pieces.

"Secondly, an improved outside shape or configuration is gained by filling the triangular stocks on all the three sides and ends, or only on two of the sides and ends, with the materials generally used for brushes or brooms, and so enabling the brush or broom to sweep out corners not only better but without injuring by contact the surfaces operated upon, or furniture, or other objects.

"Thirdly, for the better and readier fastening of brush or broom handles to their stocks," the inventors "make a metal socket similar to that used for castors, and fastened to the handles by wood screws or nails; to the lower or bottom end of said socket is fastened a coarse-threaded screw to penetrate the brush stock or head; and for mops, instead of the nail at present used," they "propose a large-headed bolt to pass through the mop head, the end of said bolt screwed to fit into a hole drilled and tapped in the bottom of a socket similar to that already described, but without the coarse-threaded screw, the said socket being attached to the mop handle by wood screws or nails."

[Printed, 4d. No Drawings.]

A.D. 1862, August 28.—N° 2388.

BIDDLE, GEORGE.—(*Provisional protection only.*)—"Improvements in the manufacture of brooms."

Holes, corresponding in number to the number of rows of bristles, are drilled longitudinally through the stock. Other holes, opening into these, are drilled for the reception of the bristles. Fibres "double the length of the tufts or knots in the finished broom," are doubled in the middle. String or wire "is passed along one of the longitudinal holes, and being drawn out of

" For cleaning forks, I provide pieces of leather or a preparation of india-rubber, and other material known as kamptulicon, upon the bottom of the case, at the front; one piece being raised upon two short pedestals, so as to clean between the prongs of the fork."

[Printed, 4d. No Drawings.]

1863.

A.D. 1863, February 28.—N° 570.

PAINE, EDWARD.—"Improved apparatus for facilitating the cleaning of vessels' bottoms while afloat."

The apparatus consists of "an oval, compressed, egg-ended, or other suitably shaped hollow vessel, formed of iron or other suitable material, surrounded on the outside by a series of brooms or brushes made from bristles, cocoa fibre, piassava, or other suitable material, cocoa, india-rubber, or other suitable matting, alone or in combination with brushes or brooms." Ropes are fixed to the ends, and the apparatus is thus dragged from stem to stern of the vessel to clean the bottom. Travelling wheels and "anti-friction chains" may be used to facilitate the passage of the "scrubber" and of the ropes.

[Printed, 8d. Drawing.]

A.D. 1863, April 2.—N° 845.

PHILLIPS, WILLIAM HENRY.—"Improvements in means and apparatus for cleaning the bottom of ships."

The apparatus "consists of a circular frame or disc, revolving freely upon a central axis carried by a suitable framing or support, capable of being suspended from the deck (by one or more ropes or chains passing around or underneath the vessel), and pressed against the bottom or side of the vessel to be cleaned when required. This framing may also be guided or stayed by chains or ropes, passing fore and aft from it to either end of the ship, which chains or ropes may be used to give the brush a fore-and-aft movement, if desired, when in use. The surface of the frame or disc which is thus pressed up against the bottom or side of the vessel, is of a brush-like character, composed of

“ cane, whalebone, wire, or other elastic or yielding materials
“ combined or otherwise with blades or rigid projections, if de-
“ sired. To the outer surface of the frame or disc is attached ”
“ a series of vanes or blades, which revolve as the vessel is pro-
“ pelled through the water, and cause the apparatus mounted
“ upon the axis to revolve by being connected to them by suit-
“ able gearing as the vessel so passes through the water, or they
“ may be caused to rotate by the action of the tide when the
“ vessel is stationary.” “ In place of attaching the brush or rubbing
“ surface to the rotating disc by gearing, as above described, it
“ may be separate therefrom, and have an oscillating or to-and-
“ fro movement imparted thereto by means of a crank or other
“ gearing connecting the revolving disc and the brush, or clean-
“ ing instrument together. By this means a chipping or
“ chopping-off action may be given to the cleaning instrument.
“ When the vessel is in still water, motion may be communicated
“ to the revolving brush or cleaning instrument by means of a
“ driving band passing over a drum or pulley on the axis of the
“ series of vanes or blades, actuating the revolving disc, to another
“ drum or pulley, mounted upon and driven from the deck of
“ the vessel, or from a raft, barge, or other floating body lying
“ alongside the vessel. The rotating brush or cleaning surface
“ may be formed around the circumference of a drum having a
“ central axis, to which rotary motion may be given by similar
“ means to those previously described.”

[Printed, 10d. Drawing.]

A.D. 1863, April 9.—N^o 900.

BURTON, JAMES RYDER.—(*Provisional protection only.*)—“ A
“ new method of, and apparatus for cleaning ships’ bottoms.”

“ This invention consists of a semicircular tube, varying from
“ 3 to 6 feet in length, to be proportioned to the size of the ship,
“ and 2½ to 3½ in width, according to the length of the machine,
“ i.e., the tube, the depth of the semicircular tube, to be 2 feet
“ deep, and flat at the top to receive the brush, which should
“ be made of whalebone, and fixed to a wooden frame, and which
“ wooden frame will be fastened on the tube by iron straps,
“ with eyes at each end to receive a screw to fasten such straps.
“ By this plan a fresh brush can at any time replace the old
“ one when worn out. The tube will require three handles at

“ each end, and six on each side, to attach ropes to work the machine.

“ When the ships’ bottoms are very foul and require more than a brush to remove the weeds or shells, an iron plate can be screwed on at each end of the machine to act as a scraper to tear all obstructions away. The power of the pressure will be in proportion to the depth or size of the tube.”

[Printed, 4d. No Drawings.]

A.D. 1863, June 12.—N^o 1473.

HUGHES, ROBERT.—“ An improved implement or apparatus for scraping and sweeping turnpike and other highways, carriage drives and footwalks, or other places requiring to be swept.”

The patentee says :—

“ My invention consists in mounting on two wheels of any desired diameter and width of tire, a suitable frame connected to the axis of the said wheels, terminating in the front with arms or shafts for hand or horse draught, and to a transverse bar for hand draught placed parallel with the axis, and diagonally for horse draught. I secure, in any convenient way, a number of tempered springs, to which I attach scrapers, a scraper being secured, or formed to, or connected with every spring so used, and which will effectually scrape a road possessing an uneven surface ; the lower extremity of the blade of such scrapers I purpose also to form of steel or other hard metal, or so construct them that the lower or scraping portion may be added or removed at pleasure. The apparatus thus constructed has only to be elevated by its shafts or draught bar in front, when the scrapers will be pressed on the surface of the road by the power exercised by the man in pulling the machine across the road. For horse draught, the machine will work in a longitudinal direction of the road, and have a regulating power either by screw, or lever, and rack, so that in each case there is power in addition to the extent of the expanding force of each separate spring before referred to, thereby permitting the scrapers to press down to, or adapt themselves to any moderate equality of surface, common and incidental to turnpike, highway, and other roads and footpaths ~~subject to much traffic~~ ; and to the apparatus thus described I ~~apply~~ fence boards or plates that also adapt themselves to the ~~surface of the road~~, and prevent the dirt or mud from escaping

“ at the side from the front of the scrapers. As a modification
 “ of this apparatus, suitable edges or their equivalent may be
 “ applied at the free end of the springs for receiving the handles
 “ of suitably constructed brushes, brooms, or besoms. And as a
 “ further modification, the frame and springs of this implement
 “ can be so arranged and placed to a cart body or tumble cart,
 “ that the mud or dirt as scraped or swept can be raised and
 “ tipped in the cart by means of a lift, with scoops or apron.”

[Printed, 10d. Drawing.]

A.D. 1863, June 13.—N° 1481. (* *)

HUTCHINSON, WILLIAM NELSON.—(*Provisional protection only.*)—“ Improvements in means of and apparatus for cleansing
 “ ships’ bottoms and sides.”

The invention is described as consisting “ in the employment
 “ of what I term a traveller, that is, a case open at top, with
 “ two sides and a bottom, to fit and travel outside and along
 “ the keel or bottom of the ship, and of a mattress backing or
 “ holder armed on the inside with bristles, scrapers, or pins,
 “ connected by ropes to the traveller and in communication by
 “ other ropes with the deck. Both traveller and cleanser are
 “ fitted with ropes, whereby they may be drawn from stem to
 “ stern and vice versâ. By adjusting the length of the ropes
 “ connecting the cleanser with the traveller and the deck, the
 “ cleanser may be made to act on every portion of the ship’s
 “ bottom and sides from the traveller upwards. I sometimes
 “ make the mattresses buoyant, to assist in pressing the bristles
 “ or pins in contact with the vessel’s bottom and sides, and I
 “ prefer to form the brushes in several parts all connected.”

[Printed, 4d. No Drawings.]

A.D. 1863, July 20.—N° 1813.

SMITH, AUGUSTUS.—“ Improvements in machinery for dragging
 “ bristles; applicable also to drawing or sorting fibres and hair
 “ into different lengths.”

The patentee says:—

“ My invention consists in forming the bottom lip of the
 “ nipper, of wood or other suitable material, and in covering it
 “ with what I term an apron of leather or other suitable material,
 “ I form the upper lip of the nipper of vulcanised india-rubber

" held between metal plates, and I connect the upper part of the
 " apron to the back of the upper lip or frame. Just under and in
 " front of the under lip I place a metal inclined plate, which leads
 " into an inclined groove or corrugated shoot, the bottom end of
 " which is just free from the surface of a gathering table. Upon
 " the layer of bristles being placed on the feed table, and the
 " feed table being fixed on the machine, motion is communicated
 " to the machine, when the nipper, with the lips separately, will be
 " advanced to the bristles or fibres, on reaching which the lips
 " close upon the longest bristles or fibres and carry them back.
 " The lips now open, and the apron being stretched between
 " them ejects such bristles or fibres as may not have fallen
 " down the inclined plate; upon the simple opening of the lips
 " the fibres will generally fall in a vertically inclined position,
 " but should they not do so, they are made to assume that position
 " on passing down the grooved or corrugated shoot on to the
 " gathering table, from whence the attendant gathers them up.
 " The machine continues to perform, as before described, and
 " gradually draws out the bristles shorter and shorter, until the
 " feed has been drawn down to the shortest length required."

[Printed, 8d. No Drawings.]

A.D. 1863, August 8.—N^o 1963.

PRICE, ASTLEY PASTON.—(*A communication from Anthony Pollak.*)—(*Provisional protection only.*)—"Improvements in the application of india-rubber and gutta percha to the manufacture of brushes and mats."

The bristles are fixed in with india-rubber instead of cement or wire. By this means the brushes are not so liable to be affected by water or acids. The inventor employs a "composition of india-rubber or gutta percha, with white lead or zinc, white sulphur, or other substances employed in the vulcanization of india-rubber or gutta percha, and the compound material is then subjected to the necessary degree of heat in moulds, according to the desired amount or flexibility required after the bristles or other substances have been suitably arranged therein. Previously to and whilst submitting the brushes to the action of heat, in order to effect the vulcanisation of the india-rubber or gutta percha, cold water may be admitted to or brought into contact with the bristles, so that they may not be injured by

" the heat. The result is that the bristles become firmly imbedded in the composition, and cannot become loose therein. By the application of the proper degree of heat in any of the well-known modes adopted by manufacturers, the back or stock of the brush may be made of a flexible composition of india-rubber or gutta percha, so as to be adapted to irregular or curved surfaces, or if desired it may be made inflexible."

The remainder of the Specification refers to mats.

[Printed, 4d. No Drawings.]

A.D. 1863, August 11.—N° 1982. (* *)

CLARK, WILLIAM.—(*A communication from Jean Baptist Tailfer.*)—"Improvements in road sweeping machines."

In this invention the "sweeper, properly so-called, consists of a carriage mounted on two running wheels, and an axle serving to carry the whole machine. At the rear end is placed a cylindrical brush, carried by a double frame on the machine; this frame oscillates on the axle supporting it, and receives the necessary inclination by the driver or attendant, in order that the sweeping may be properly effected. This sweeper, which is mounted obliquely to the longitudinal axis of the carriage, is formed of brushes arranged spirally on a cylinder; it is driven by endless chains passing round two pulleys, one fixed on the axis of the brush, and the other formed of a piece with one of the running wheels of the machine, and serving as the driver."

Different modifications of the invention are described, in some cases an intermediate shaft being placed between the driving wheel and the sweeper, so as to transmit the motion more directly, and prevent the endless chain from running off the pulleys. In other cases the brush or sweeper may be made conical, the smaller part serving to collect the dirt. For sweeping narrow ways, which may be effected by a hand machine, the sweeper is mounted below two hand shafts carried on two wheels, the axle of which is furnished with wheel gearing imparting motion to the cylindrical brush."

In the first arrangement the brush may be lifted from the ground and thrown out of gear simultaneously, by means of a lever and certain appendages connected therewith.

[Printed, 1s. 2d. Drawings.]

A.D. 1863, September 18.—N° 2292.

DWYER, ROBERT DOYNE. — “Apparatus for cleaning and painting, or coating the bottoms of ships and other structures.”

A breech-piece fits over the keel. From it on each side spring flexible arms which carry brushes or scrapers. A screw is fitted to the breech-piece so as to be acted upon by the water as the ship moves. This screw is connected to the arms so as to give them a reciprocating motion. The whole apparatus is let down by ropes passing from the bows and astern of the ship, and held fast by guy-ropes at the sides. The brushes are formed with compressible “pockets” at the back, to hold paint, etc., and holes are provided to allow the paint to flow out to the fibres. Scrapers are also described.

[Printed, 10d. Drawing.]

A.D. 1863, October 14.—N° 2522.

BONNEVILLE, HENRI ADRIEN. — (*A communication from François Capponi.*)—“An improved apparatus for cleaning ships’ hulls.”

A shoe fits on the ship’s keel, and is held fast on it by levers, the ends of which are attached to ropes. The shoe carries pulleys over which the ropes for working the brushes pass. The ropes are all worked from two rafts, one on each side of the ship. The brushes are of hollow metal or other similar material, and their lightness carries them against the hull of the vessel. The rope carrying each brush passes from one raft under the vessel to the other raft, so that it is hauled up from one and down from the other.

[Printed, 8d. Drawing.]

A.D. 1863, October 15.—N° 2529.

WEATHERDON, BALDWIN FULFORD. — “A new apparatus for rubbing off or removing the dust or dirt from boots or shoes.”

The apparatus is intended for use in entrance halls and similar places. It cleans the boot while on the wearer’s foot. A suitable case contains brushes mounted within an annular frame, so that they act upon the boot when it is placed within the frame. A suitable plate is provided upon which the foot rests. By means of a handle and gearing the brush is revolved and thereby made

to act upon the boot and clean it. In a modification, motion is imparted to the brush by the action of the foot. In this case the brush and sole-plate together are mounted upon a lever, and when this is depressed by the weight of the foot, the brush is revolved by a pinion on its axis which engages with a toothed quadrant. A drawer for receiving the dirt is provided. The apparatus may be applied to various appropriate articles of furniture.

[Printed, 8d. Drawing.]

A.D. 1863, October 16.—N° 2534.

DE MASSAS, FRANÇOIS ANTOINE EDMOND GUIRONNET.—
 “Improvements in smut machines, and in machines for cleaning
 “and peeling grain and seeds.”

Improvements upon No. 2274, A.D. 1861. An improved machine for the above purpose is described, in which brushes are used “of gradulated strength or hardness fitted on the inner surface of a fixed casing.” The hardest set is composed of “clusters of wire, round each of which clusters bristles are wound.” The next set is made of “French whisks or dog grass,” and the softest set of cocoa-nut fibre.

[Printed, 8d. Drawing.]

A.D. 1863, October 26.—N° 2647.

CLIFTON, EDWARD, and GREENWOOD, BENJAMIN.—“Improvements in the manufacture of brushes used in machines employed for preparing and combing wool, cotton, silk, and other fibrous substances.”

“Dabbing brushes” are formed “of tempered steel wire in lieu of bristles.” The following description is given of the process of manufacture:—

“According to the kind of brush required, we form a suitable stock; we then take a quantity of steel wire, and cut it to the required lengths, or, if more suitable, steel pins already cut; we fix or form the same into layers, and bind them at one end in such a manner that when finished they are not unlike a comb; we then bend the layers of wire to the form required, and proceed to add layer to layer until they form a metallic brush of the required shape and size. The metallic brush thus formed we proceed to affix to the stock in the most suitable manner for working, and according to the kind of machine for which the

“ same may have been made ; and where we find it an advantage,
 “ we form the steel wires with flat, bevel, or dubb points, or any
 “ other kind of point most suitable according to the purpose to
 “ which the brush is to be applied.”

[Printed, 4d. No Drawings.]

1864.

A.D. 1864, January 7.—N° 45.

CAMP, EDWIN GILLARD.—(*Provisional protection only.*)—“ Im-
 “ provements in brushes or apparatus for brushing.”

An Improvement on No. 657, A.D. 1862:

It “ consists in imparting rotary motion to the brushes by means
 “ of clockwork or other like mechanism contained in the interior
 “ or drum of the brush itself, or in a box in connection there-
 “ with.”

[Printed, 4d. No Drawings.]

A.D. 1864, January 11.—N° 69.

GARROD, JOSEPH NICHOLAS.—“ Improvements in stock or
 “ plasterers’ brushes.”

“ The bristles or other material of each ‘ knot ’ or cluster are
 “ first dipped at the root in a cement composed of marine glue,
 “ linseed oil, and rosin, in the proportions by preference of one
 “ part by weight of marine glue to one part by weight of the lin-
 “ seed oil, and seven parts by weight of rosin, or in other suitable
 “ cement, and then the root of each ‘ knot ’ so cemented is bound
 “ round by string, and again cemented when these ‘ knots ’ are
 “ applied with the root end of each in a separate cell or chamber
 “ in the end of the ‘ stock,’ and they are there held by the com-
 “ bined action of the cement, and by rivets which are passed
 “ through the cells, and through the roots of the ‘ knots ’ before
 “ the cement has had time to set. The end of the ‘ stock ’ in
 “ which the cells or chambers are formed is also bound by a metal
 “ band which is held by the rivets referred to.”

[Printed, 10d. Drawing.]

A.D. 1864, January 21.—N° 157.

HINDE, JOHN GEORGE.—“Improvements in brushes.”

“This invention relates to brushes which have a strap at the back for the hand to pass under. Instead of fixing the ends of the strap to the brush, a passage is formed from side to side of the back through which the strap is passed, and the ends of the strap are attached together by a buckle or otherwise; when making the back of a brush of two parts, I prefer to form this passage from side to side of the brush by forming a groove of the proper depth and width in one of such parts, or a corresponding groove may be formed in both the parts; and when making the back of three parts, the inner part may be composed of two pieces, the inner edges of which two pieces in making the back of a brush are kept apart a distance somewhat greater than the width of the strap.”

[Printed, 8d. Drawings.]

A.D. 1864, March 12.—N° 631.

SMITH, AUGUSTUS.—“Improvements in machinery for dragging bristles, applicable also to drawing or sorting fibres and hair into different lengths.”

The inventor says:—

“Upon guides or supports connected to the framing of the machine, I mount a reciprocating frame, which forms the upper nipper, and has jointed thereto an additional piece to form the lower nipper. The lips of the nipper are, by preference, of india-rubber, and have connected to them an apron in the manner described in the Specification of Letters Patent granted to me on the 20th July 1863, No. 1813. The shoot on to which the bristles or fibres fall is by preference corrugated, as is also described in the said Specification; it is hinged to the under part of the lower nipper, and moves to and fro with the reciprocating frame. Near the upper end of the shoot I hinge thereto a transverse plate, the back of which in the backward motion of the reciprocating frame is caused to rise by means of a projection on the framing of the machine, so that it is raised into a more vertical position to receive the bristles released from the nippers. In the forward motion of the reciprocating frame, this plate is drawn down against the corrugated shoot by a spring or otherwise, and the bristles fall therefrom into the cor-

" rugations of the shoot. At the lower end of the shoot, between
 " every two corrugations, I fit a pin placed at a slight angle to
 " the shoot, whereby the bristles are prevented from falling on to
 " the gathering table in an irregular manner; or I cut away or
 " remove a portion of the lower end of each groove. Motion is
 " imparted to the reciprocating frame by cranks or excentrics
 " connected to a shaft driven in any convenient manner. The
 " nippers are caused to open and close at the proper time as fol-
 " lows:—Supposing them to be closed after having taken hold
 " of a certain quantity of fibres or bristles, the rear end or tail of
 " the lower nipper in the backward motion of the reciprocating
 " frame comes against one or more projections on a cross bar,
 " and is thereby raised, the cross bar is caused to make a partial
 " revolution by a lever connected to a cam on the shaft before
 " referred to, and a spring attached to the framing of the machine
 " assists in drawing back the bar to its original position; the
 " lower nipper being jointed at about its centre to the recipro-
 " cating frame, when the rear end or tail thereof is raised as just
 " mentioned, its fore end is depressed and separated from the
 " upper nipper; the apron at the same time becomes stretched,
 " and ejects the bristles or fibres, which fall on to the hinged plate
 " above mentioned, and thence to the corrugated shoot. The
 " shoot is, as before stated, hinged to the under part of the lower
 " nipper, and in the backward motion of the reciprocating frame
 " a fixed transverse bar on which the shoot rides, causes the shoot
 " to assume a more inclined or a horizontal position in order
 " that it may receive the bristles or fibres released from the
 " nippers in the forward motion of the frame; the shoot gra-
 " dually resumes its most vertical position, whereby the bristles
 " or fibres fall therefrom on to a gathering table or other receiver.
 " The nippers are closed by springs acting against the top of the
 " rear end or tail of the lower nipper.

" To feed the machine the attendant places the bristles or fibres
 " upon a lath or plate furnished with a comb or teeth, above
 " which he places another similar lath or plate in such manner
 " that the teeth of one lath take into the teeth of the other lath.
 " These laths are attached to a bed plate made to travel towards
 " the nippers by means of a ratchet wheel and pawl actuated by a
 " lever fitted to the shaft to which the cranks or excentrics which
 " move the reciprocating frame are connected. At each forward
 " motion of the reciprocating frame, the bed plate moves about

“ the eighth of an inch more or less nearer thereto, so that bristles
“ or fibres of gradually decreasing lengths are each time presented
“ to the nippers, until they are dragged or drawn to the length
“ required. When the bed plate has reached the end of its course,
“ a projection, carried by a wheel in gear with teeth on the
“ ratchet, comes in contact with a leg or backward extension of
“ the pawl, which is thereby disengaged from the ratchet; the
“ bed plate is then returned to its first position by a hand wheel
“ or otherwise. Two thin plates, one above and the other below
“ the level of the bed plate, and sliding up and down on vertical
“ rods, collect or press together the ends of the bristles or fibres,
“ so that they are presented in an even and compact layer to the
“ lips of the nippers. These plates are worked by rods connected
“ to a double lever actuated by another rod and excentric on the
“ shaft before referred to.”

[Printed, 10d. Drawing.]

A.D. 1864, March 19.—N^o 704.

SEARLE, THOMAS JOHN.—(*Provisional protection only.*)—“ Im-
“ provements in apparatus for cleaning and polishing boots and
“ shoes.”

“ This invention has for its object improvements in apparatus
“ for cleaning and polishing boots and shoes. For these purposes
“ three circular brushes are mounted on their axes or spindles;
“ these brushes have the bristles or other suitable material set on
“ the face and as near as may be at right angles thereto. The
“ axis or spindle of each rotatory brush has a pulley thereon to
“ receive an endless band, which is put in motion by a wheel on
“ a cranked axis, which is actuated by a treadle similar to that of
“ a lathe. The first brush is formed with strong bristles or other
“ suitable materials proper for brushing off the dirt; the second
“ brush is formed with soft bristles or materials suitable for ap-
“ plying blacking, and is arranged to be driven at a comparatively
“ slow speed as compared with the other two brushes; the third
“ brush is formed with suitable bristles or materials, and set in a
“ proper manner to form a polishing brush, and this brush is to
“ be driven at a comparatively high surface speed. By the use of
“ rotating circular surface brushes there is an advantage gained, as
“ by commencing to act on a boot or shoe at one side of the
“ central axis of the brush, and then moving the boot or shoe
“ across the axis, the boot or shoe will be acted on by the brush

" first in one direction and then in an opposite direction. When desired, a machine may be made with one spindle, and the brushes arranged to be easily changed, and the speed of rotation varied. Or a machine may be made with two spindles."

[Printed, 4d. No Drawings.]

A.D. 1864, March 30.—N° 792.

DOUGLAS, ROBERT.—"Improvements in combs and brushes."

The handles of shaving, hair, and other brushes are made hollow, and have a piston driven by a spring within them. Suitable openings are provided, through which grease, shaving soap, or other matter may be introduced. This is driven out by the piston through suitable valves in the brush. These valves are arranged so that they can be opened when required, otherwise they remain closed. In the shaving brush the hairs are fitted in " a ring-like holder " and the shaving soap delivered by a nozzle in the centre of the ring. In the hair brush there are numerous small openings connected with a " central conduit."

[Printed, 10d. Drawing.]

A.D. 1864, March 30.—N° 794.

DOUGLAS, ROBERT.—"Improvements in rotatory hair brushes."

Instead of having a rotatory brush with a handle at one end fixed to the axle and a crank at the other end, there is a crank handle at both ends. To each end of the brush, at right angles to the axis, is fixed a projecting piece, so that the two pieces project in opposite directions; each piece carries a handle fitted so that it can revolve. By these handles the brush can be rotated. For convenience of packing, the parts may be capable of being disconnected and fitted by screws.

[Printed, 10d. Drawing.]

A.D. 1864, March 31.—N° 804.

HOLBROOK, WILLIAM.—"Improvements in apparatus for hair brushing."

" The brushes are to be formed of a series or rows of bristles, of any desired number, on a circular or polygonal hollow shaft set between two quilled handles, one of which contains a spiral spring enclosing and being fixed to a spindle, the continuation of the spindle passing through the centre of the brush and

“ fitting the square or other box thereof; the other end of the
“ spindle is provided with a screw thread on to which the opposite
“ handle is attached. Or, in lieu of the spiral spring in the
“ handle, a narrow helical or spiral spring may be enclosed in a
“ circular box at the end of the brush between it and the
“ handle. In both cases to wind up the springs it will be
“ necessary to use a ratchet wheel and pall, so that the springs
“ may be wound up, and the brush placed on one side ready for
“ use. When it is desired to apply the brush, it is held by both
“ handles and the pall disengaged by means of a thumb piece,
“ in order to afford rotary motion to the brush, the speed being
“ controlled by a friction break actuated by the hand of the
“ operator. The handle may be made of thin metal for the sake
“ of strength and lightness, and when the spring is contained in
“ a box, such box may be prolonged in order to enclose a series
“ of toothed wheels similar to clockwork for the purpose of
“ regulating the rotary motion of the brush.”

[Printed, 4d. No Drawings.]

A.D. 1864, April 22.—N^o 1011.

PEPPER, TOBIAH.—“An improved boot and knife cleaner.”

In this machine the articles to be cleaned are revolved, while the cleaning apparatus remains stationary. In the boot cleaning machine the boots are arranged upon suitable spring lasts or holders radiating from the centre spindle of a drum. Round the internal circumference of the drum are ranged the brushes. These are curved and are placed in two parallel lines, and the boot passes between them. They overlap slightly and are placed alternately. They are jointed to the base plate so as to give way as the boot passes, but are fastened down by india-rubber or other springs so as to press against the boot. The brushes themselves may also be jointed and have india-rubber tubes in their joints to make them elastic. There are three sets, cleaning, blacking, and polishing, all constructed in a nearly similar manner; the blacking brush has behind it a reservoir, and has perforations in the back through which the blacking passes. These sets are placed in the machine as needed, first the cleaning and then the blacking and polishing together.

In the knife cleaning machine there are spring holders for holding the knives in a similar position, and they are thus

exposed to the action of cleaning brushes or other surfaces. The hair in these brushes "is placed in diagonal lines and parallel to those on the opposite brush." Openings in the base admit cleaning powder. Small vulcanised india-rubber tubes may be fixed behind the brushes. "These brushes are adapted for cleaning forks by giving a little more space between the surfaces, and fixing long bristles or hair at the base of the brushes to act between the prongs." Polishing surfaces of various descriptions may be used. The brushes may be fitted only to the upper half of the machine, the lower half being left vacant for the insertion of the articles to be cleaned.

[Printed, 1s. 6d. Drawings.]

A.D. 1864, April 30.—N° 1098.

BESSAC, JEAN. — (*Provisional protection only.*) — "Improvements in revolving hair brushes, and in the machinery for working the same."

The invention is described in the following words by the inventor:—"I set the brush on a tube provided internally with a female archimedean screw in which works a male archimedean screw or screws, right or left handed, together or separately, moved to and fro by one or both hands, thereby giving to the brush a horizontal or circular motion. The brush may also be made so as to work by means of wheels and pinions and ratchets placed in opposite directions, so that the hand being turned to the right or left the brush is caused to revolve one way only. To keep the brush steady a framework attached to it is placed against the breast of the person using the brush, and which acts as a support to the brush while in motion.

"Another arrangement of mechanism for working the brush consists in making a false bottom to the chair on which sits the person to be operated on. When the brush is to be used a stop is moved in the chair, when the weight of the person presses down the false bottom, which, by means of a rack, gives motion to a pinion communicating with a pulley or pulleys furnished with an elastic band passing over a pulley on the brush, which is conveniently mounted on a suitable shaft or axle with handles, thus giving to it a rotary motion, or the same motion may be obtained by a rack on the false bottom of the chair acting on suitable gearing. As soon as the person rises

" from the chair, the false bottom is caused to take its original position by means of a spring or other suitable mechanism."

[Printed, 4d. No Drawings.]

A.D. 1864, May 2.—N° 1106.

PARKER, FREDERICK, and HITZMAN, HENRY.—(*Provisional protection not allowed.*)—"Improvements in revolving brushes."

"The invention has reference to such revolving brushes only as are intended to be used for brushing either the hair or skin of persons, horses, or other animals, and has for its object to cause the same to revolve without the aid while in use of either a driving band or of a crank turned by the hand, thus rendering them more portable and convenient for use in any position than at present, and consists (firstly) in constructing a revolving brush, which, when wound up or charged, will contain within itself a motive power which will cause the brush to revolve for a limited time.

"(Secondly), in the employment of a spring to form part of a revolving brush which when wound up or charged will act as a motive power to produce the revolving action of the same.

"(Thirdly), in the employment of a mechanical arrangement to form part of a revolving brush whereby the pace at which it would revolve is checked.

"Fourthly, in the employment of a mechanical arrangement to form part of a revolving brush, whereby the brush will only revolve during the continuance of pressure applied to a valve or other contrivance constructed for that purpose."

[Printed, 4d. No Drawings.]

A.D. 1864, May 10.—N° 1180. (* *)

CONDON, THOMAS WILLIAM, CONDRON, RICHARD, and HARTSHORNE, GEORGE RAYNER.—"Improvements in the manufacture of brushes."

The object of this invention is to obtain a flexible and elastic front and back to brushes of all kinds where flexibility is desirable. For the front or that portion which holds the materials forming "the frictional face," sheet vulcanized india-rubber is employed, or any of its compounds, alone or in combination with cloth; it is cut or moulded to the required shape and bored or punched through or partly through with holes; or

the moulds may be made with studs or pins in them. The holes are filled with hair, bristles, or any kind of fibre, either drawn in with wire or set with any suitable solution or cement. The back is of form and thickness suited to the particular kind of brush to be produced, either round, hollow, ribbed, or with a core of cane or wood to give a partial rigidity, with a hand strap or straps, or with or without a handle. Sometimes there is not any covered back, and the back part is "grooved" or reeded in concentric or parallel lines," the wire lying in the grooves or between the reeds resembling a line of stitches.

[Printed, 4d. No Drawings.]

A.D. 1864, May 10.—N° 1186.

CONEY, FREDERICK.—(*Provisional protection only.*)—"Improvements in brushes."

The inventor says ;—

"My invention consists in constructing and combining brushes in such manner that in one bulk brushes for different purposes may be combined as hereafter described. I make a brush holder in the form of a hollow box or case, and fill one, two, or more sides with bristles to suit any purpose required, while velvet or other pile fabric may be secured to one or more of the sides not furnished with bristles. I then insert in the hollow holder another brush, or brush and bottle, and provide a space between the back of this brush and the bristles for a comb. For dressing purposes, I make the back of this interior brush of silvered glass."

[Printed, 4d. No Drawings.]

A.D. 1864, May 12.—N° 1208.

DWYER, ROBERT DOYNE.—"Improvements in apparatus for cleaning the bottoms of iron and other ships."

"The apparatus consists of one, two, or more flexible ropes, chains, bands, or webs with scrapers, brushes, or cleaners attached thereto or thereon at short distances apart, and such apparatus is made sufficiently long to reach from the keel to the load-water line, on one or both sides of a ship." "The apparatus is made to travel from stem to stern, or vice versâ, by ropes attached to the said apparatus, and operated or hauled in on-deck. Two ropes are placed parallel to each other at dis-

“ tances apart varying from six to twenty-four inches, according
 “ to the size of the ship to be cleaned, and at distances apart,
 “ varying from twelve to thirty-six inches; there are secured
 “ thereto boards or plates, say of timber, to serve as foundations
 “ for the scrapers and brushes. To one of the flat sides of each
 “ of the boards or plates there is attached a metal scraper pre-
 “ senting its edge to the side of the ship, and having both of its
 “ ends bent and bevilled off, so that when in use it will ride over
 “ the plates’ lap joints both in the up and down motions. On
 “ the other sides of the said boards or plates washers made of
 “ coir or other fibre are attached. By this arrangement either
 “ the scrapers or brushes can be used. To prevent friction at the
 “ keel a breech or keel piece with rollers therein may be used.”

Reference is made to No. 2292, A.D. 1863.

[Printed, 10d. Drawing.]

A.D. 1864, May 13.—N° 1212.

GALL, ARTHUR.—(*Provisional protection only.*)—“ Improve-
 “ ments in fire grates, and apparatus for cleaning chimneys.”

A screwed rod is permanently fixed along the length of the chimney, and upon it works an “iron cap of the exact size and diameter of the flue.” The centre of the cap has a screw in it, so that it can be screwed on the rod. The flue is of an oval shape, so that when the rod is rotated, the cap cannot turn round, but is driven along the flue by the screw and thus made to clear away the soot. “A brush of peculiar construction,” which is not further described, may be attached to the cap. Cogged wheels and a winch are provided, by which the rod may be rotated. These are moveable.

[Printed, 4d. No Drawings.]

A.D. 1864, July 4.—N° 1661.

TAYLOR, JOHN.—(*Provisional protection only.*)—“ An improved
 “ endless-band brush, and the application thereof.”

“The first part consists of setting tufts of hair or other suitable material upon a flexible backing, such backing being composed of cross battens of wood or strips of metal, connected together by means of vulcanized india-rubber or other suitable material, in such a manner as to form the endless-band backing, by which means the band is made elastic, and capable of being expanded

“ to a considerable extent. This endless-band brush is arranged
“ for and made to pass over a drum pulley, at one extremity in
“ connection with motive power, and to receive motion therefrom;
“ at the other extremity it is made to pass over one or more drum
“ pullies.

“ In cases wherein only one drum pulley is applied, it is carried
“ upon an axle held in the hands of the operator; and in cases
“ wherein two or more drum pullies are applied, they are each
“ carried upon a separate axle attached to a frame or carriage
“ held in the hands of the operator.

“ Brushes constructed as herein-before described may be applied
“ to brushing and cleaning human hair, skin, wearing apparel,
“ and such like purposes.”

[Printed, 4d. No Drawings.]

A.D. 1864, July 5.—N^o 1674.

CLIFTON, EDWARD.—“ Improvements in brushes, and in the
“ manner of applying them to machinery for combing wool,
“ cotton, silk, or other fibrous substances.”

“ This invention relates to the ‘dabbing’ brushes employed
“ in wool-combing machines for pressing the wool or other fibre
“ into the teeth of the combs, and the object of it is to reduce
“ the great wear and tear in such brushes produced by the con-
“ stant striking on the teeth of the combs at the same place or
“ part of the brush.” The improvements “ consist in construct-
“ ing and applying these brushes so as to cause them to be con-
“ stantly changing position relatively to the teeth of the combs
“ on which they strike.” The brush is “ (by preference) circular,”
and mounted “ centrally by a pivot or neck capable of rotating
“ in a brush or box attached to the ordinary arm or part of the
“ machine which produces the ‘dabbing’ motion or action of
“ the brush on the teeth of the combs,” and arranged “ so that
“ the centre of the pivot is placed to one side of the several rows
“ of teeth of the combs, which as they revolve or move forward,
“ cause the brush to rotate or turn on its pivot a short distance
“ at each stroke, consequently changing the place of contact
“ with the teeth at every action of the brush, so that every
“ part of the brush is brought into contact with the teeth in
“ regular order;” the inventor gives “ an oscillatory motion, or a
“ transverse motion, to brushes of ordinary form or construction,
“ or other desirable forms or constructions, by means of crank

“ or eccentric actuated from any convenient part of the machine,
“ by gearing or other suitable means so as to obtain or produce
“ a constant change of position of the brush at every action upon
“ the combs, and thereby bring every part of the brush or bristles
“ thereof into use.”

[Printed, 10d. Drawing.]

A.D. 1864, July 12.—N° 1726.

GREENWOOD, BENJAMIN, and UNDERWOOD, ISAAC.—

“ Improvements in hair and flesh brushes.”

“ These improvements relate to brushes to be employed for
“ brushing the human hair and skin, and consist in fixing a series
“ of narrow brushes on to a long endless belt or strap, and cross-
“ wise thereof; the aforesaid belt passes over pullies mounted in
“ a frame, rotatory motion being imparted to said pullies by
“ wheelwork or otherwise. By these means the brush is rendered
“ flexible or yielding, *id est*, those parts between the centres of
“ the two pullies being unsupported when brought into contact
“ with the human head or body, adapt themselves readily to the
“ form or shape thereof, and it is this peculiar mode of making
“ rotating hair brushes that constitutes the feature of novelty in
“ these improvements.”

[Printed, 10d. Drawing.]

A.D. 1864, August 1.—N° 1908.

EASTWOOD, CHARLES.—“ Improvements in machinery or ap-
“ paratus for sweeping the platforms of railway stations and
“ footpaths.”

“ The apparatus consists of a framework (rectangular by pre-
“ ference) of cast iron or other suitable material supported on
“ wheels in the front part, and carrying in the back part a cylin-
“ drical brush free to revolve on its bearings, such brush being
“ adjusted by means of set screws applied to the bearings or in
“ any convenient manner.” A box for the reception of dust or dirt
is placed “ in the bottom of the front part of the frame open to
“ and in juxtaposition with the brush. A groove pulley on one
“ of the wheel axles communicates motion to a similar grooved
“ pulley on the axle carrying the brush by means of a band or belt,
“ and when the attendant pulls the machine or apparatus by
“ means of a handle affixed to the front part of the frame, rotary

“ motion is given to the brush (which is in contact with the
 “ ground) by the method above described, and dust or dirt is
 “ carried into the receptacle in the bottom of the framework.
 “ The brush may obviously be constructed of any desired or
 “ convenient length.”

[Printed, 10d. Drawing.]

A.D. 1864, August 12.—N° 2009.

DYER, HUGH.—“ Improvements applicable to chimney tops and
 “ ventilators, and apparatus for cleaning the same and flues
 “ generally.”

An endless chain passes along the chimney and over a pulley at the top. This pulley is formed with projecting arms, so that a circular brush can be passed over it, the arms serving to guide the brush. This circular brush is attached by a short chain to the endless chain. A frame may be attached to the grate below. This frame has a horizontal driving shaft revolved by a crank handle, and carrying a pulley over which the endless chain passes, so as to receive motion from it. A bar is fixed a little way up the chimney, between the two parts of the endless chain, to prevent their becoming entangled. Over it the lower part of the chain may be hung when it is not in use. The brush is preferably made of wire. In front of the grate a cloth is stretched, which has an opening for the axle of the driving shaft to pass through. The remainder of the Specification is not connected with the series.

[Printed, 1s. Drawing.]

A.D. 1864, August 16.—N° 2039.

DARCAGNE, CHARLES FRANÇOIS.—“ A new mode of treating
 “ or preparing the Sorgho plant (*Holcus Sorghum*) so as to render
 “ the fibre thereof useful in manufactures as a substitute for
 “ horsehair and otherwise.”

Among the articles that can be made of the fibre “dusting
 “ brushes” are mentioned. In preparing the fibre the “pani-
 “ culæ” are separated from the main stem. They give the best
 fibre. The fibres are boiled in a solution of caustic lime and soda
 ashes or other alkali. They are next crushed between rollers,
 and cleaned by boiling in a solution of carbonate of soda, or by
 repeated rinsing in warm water. After this they may be carded in

the usual way. The fibres may be softened by immersion in soapy water, and bleached in an ordinary chlorine bath followed by a bath of dilute sulphuric acid.

In another method, the plants are soaked in salt water, cut up in a machine like a chaff cutter, and crushed between rollers. Further processes when the fibre is to be used for paper-making are given, but no special processes for brush-making are described.

[Printed, *ad.* No Drawings.]

A.D. 1864, August 25.—N° 2099.

PETON, NICHOLAS JACQUES.—“An improved machine for sweeping chimneys.”

“The invention consists in an improved construction of machine for sweeping chimneys. The machine consists partly of a box of an oblong form, in which are introduced racks; at one end of the upper extremities of the box is a small hole through which the racks pass; the upper part of the first rack has a screw, to which is fixed the apparatus for sweeping the chimney. This apparatus consists of a hollow cast-iron block of a conical form, in which are placed a number of steel blades, the extremities of which act as scrapers, being made of thin steel, having the form of a comb, and of sufficient length to scrape the internal sides of a chimney of any size. The conical opening in the cast-iron block is closed by another block of a proportional size, and having a flat surface, and on this surface are placed in a horizontal position other blades similar to the first, and which fill the interstices between the first blades; several horizontal rows of these blades are superposed, each row is separated by a roller, the whole being secured by a screw bolt. Close to the small opening in the box is a spring pressing on a pin, which enters the small opening, and striking against a steel grooved piece connected with the racks, causes the said grooved piece to be raised or lowered when it is required to unite or disunite the racks. This grooved piece is fixed at the lower extremity by a small steel band acting as a spring, and which in descending covers the upper part of the rack, and by this means unites two racks. The same motion couples all the racks together. The rack is jointed in the middle by a hinge to enable it to pass over all the curves. A moveable projecting roller is placed on the hinge, to prevent it coming in contact with the uneven parts of the chimney and obstruct its ascen-

“ sion. A second hinge is set at the top part of the racks to
 “ assist their ascent, which is effected by means of a pinion and
 “ cog wheel put in motion by a crank arm at the other extremity
 “ of the box. Connected with the crank arm is a bevil wheel
 “ which transmits its motion to another pinion, which causes a
 “ screw to turn and the nut to advance the length of the box ;
 “ when the motion of the crank arm is transmitted to the screw,
 “ the nut of the latter pushes forward a spring which presses on
 “ the racks contained in the box, and causes them to advance so
 “ soon as the rack in rising leaves the box, and enters the chim-
 “ ney. The pressure of the spring causes the head of each of the
 “ racks to advance and follow the one that precedes it. On
 “ the shaft of the machine is a ratchet and on the box a pawl,
 “ serving to stop the descending action of the racks.”

[Printed, 10d. Drawing.]

A.D. 1864, August 31.—N° 2138.

PERCY, WILLIAM CARTER STAFFORD.—(*Provisional protection only.*)—“Improvements in apparatus for washing, scrubbing, or
 “ cleaning buildings, shop fronts, windows, carriages, watering
 “ gardens, plants, and for other similar purposes.”

The inventor says :—

“ I attach to an ordinary brush head one or more perforated
 “ pipes, and attach thereto a hollow tube of any required length
 “ to form the stem or stale ; to the other end of the stem or stale
 “ I attach a flexible tube extending to the place from whence I
 “ obtain the necessary pressure of water or other fluid to be
 “ forced through the flexible tube and stem or stale to the per-
 “ forated tube or tubes, through which perforations the water or
 “ fluid passes on to the bristles of the brush, giving a continuous
 “ stream of fresh water, and enabling the operator by means of
 “ the hollow stem or stale to scrub and cleanse the object to be
 “ acted upon.

“ It will be observed that when the necessary pressure of water
 “ can be obtained, as from elevated reservoirs in waterworks, the
 “ apparatus is complete, but when this is wanting I introduce an
 “ apparatus to obtain the necessary pressure, consisting of a water
 “ tank or vessel with a piston fitting its interior air-tight, and a
 “ tap or plug at the bottom for the escape of the water or fluid
 “ ~~to the flexible tube,~~ as already described. In order to obtain

" the necessary pressure to force the water out of the tank, I fix
" on the top of it a crosshead with a screw in its centre to act
" on the piston, the screw being acted upon by means of a winch
" handle, by turning of which motion is communicated to the
" screw, they being connected by a shaft and worm and worm
" wheels, or other suitable gearing."

[Printed, 4d. No Drawings.]

A.D. 1864, September 17.—N° 2287.

NAPIER, JAMES MURDOCH.—(*Provisional protection only.*)—
" Improvements in apparatus for cleansing the lower parts of
" boots and shoes."

" The invention consists in constructing and applying apparatus
" in order that the lower parts of the boots and shoes of persons
" passing into and about " public and other " buildings and spaces
" may be cleansed without requiring thought on the part of the
" wearers of boots and shoes. For these purposes a grating
" suitable to be walked on is provided in the place where it is
" desired that the cleansing of the lower parts of the boots and
" shoes shall be effected, and between the bars of the grating
" there is applied a mat, or brush, or other suitable cleansing
" surface made of vulcanized india-rubber or other material,
" which is caused to move by any suitable power. The bristles
" or other projecting fibres or parts of the moving mat or cleanser
" project somewhat above the top surface of the grating. By
" these means the lower parts of the boots and shoes of persons
" standing or walking on the grating will be cleansed, and in
" order that such moving mats, brushes, or cleansers may be kept
" free from dirt and dust, apparatus is in some cases applied for
" receiving dirt and dust from them into a proper receptacle."

[Printed, 4d. No Drawings.]

A.D. 1864, September 19.—N° 2292.

VERO, JAMES.—(*Provisional protection only.*)—" Improvements
" in brushes or brooms."

The object of this invention is to provide a means by which
house brooms and other similar brooms may be worn equally at
both ends. Instead of fixing the handle in a hole at the back of
the broom, a metal socket may be fixed to the back. The upper
part of this socket is bent at the required angle for the handle,

and has a hole to receive the handle. By this means the socket may be turned round, and the handle fixed at the proper angle on either side of the broom. Or two holes may be made in the broom back, and the handle screwed into either.

[Printed, 4d. No Drawings.]

A.D. 1864, September 26.—N° 2356.

OSTLER, EDWARD.—(*Provisional protection only.*)—"Improve-
ments in apparatus for brushing the hair."

"The invention consists in fitting a circular brush in a frame
suspended from or connected to the ceiling, wall, or other con-
venient part by means of an elastic or other band passing over a
roller or pulley attached to the ceiling, wall, or other part, and
over another roller or pulley attached to the frame; or the frame
or brush may be otherwise suspended or connected. The frame
is not made to revolve, but is free to be moved as required in
order to aid in applying the brush to all parts of the head. The
brush is connected to a forked holder, the forks of which are
connected by a rod passing longitudinally through the brush,
while the handle of the fork is in connection with the framing,
and is intended to be taken hold of by one hand of the opera-
tor; or the brush may be held by a handle on each side, with
or without the forked holder. Rotary motion is imparted to
the brush either directly or through the intermediation of
gearing to increase the speed of rotation by another handle
connected with the rod, which passes through the brush or
otherwise."

[Printed, 4d. No Drawings.]

A.D. 1864, September 28.—N° 2378.

DAVIES, GEORGE.—(*A communication from Henry Louis Charlemagne Lhuillier.*)—"The employment and application of
thin strips or sheets of wood for various new and useful
purposes."

The only part of the invention relating to the present subject
is described as consisting in uniting "one or more thin strips of
thin wood" "by glueing, cementing, sewing, or otherwise,"
"to skin, leather, felt, woven fabric, paper, or other suitable
material, for making strips or sheets of material to receive
teeth or points of metal, or the hair or bristles of animals to be

“ used in carding, combing, or brushing of textile and other materials.”

[Printed, 4d. No Drawings.]

A.D. 1864, September 30.—N^o 2412.

JENNINGS, JAMES.—(*Provisional protection only.*)—“ Improve-
ments in mounting rotary brushes.”

The spindle of the brush is mounted in a fork at the end of a lever handle, and has at one end a crank handle, or it may be otherwise driven. The handle has two springs of vulcanized india-rubber attached to it “ at a point intermediate of its length, and these springs at their opposite ends are attached to the ceiling of the room in which the brushes are used; the handle or fork at a short distance behind where the spindle of the brush is carried, has a weight suspended from it, or has springs attached to it, which may either be connected to the floor of the room, or to the chair on which the person sits whose hair is to be brushed, or be held by the foot of the person using the brush. In using a brush supported in this manner, the person using the brush places the lever handle under one arm and brings the handle into a horizontal position, and in so doing puts a strain on the springs by which the handle is supported from the ceiling, and as the rear end of the handle by being placed under the arm,” “ is prevented from rising, the spring tends to draw upwards the fore end of the handle that carries the brush, and counteracts the tendency of the weight ” “ to draw the brush downwards.” “ In order that the spindle of the brush may readily be inserted into and removed from its bearings in the fork ” “ so that the brushes may be quickly changed, one end of the spindle is caused to enter a hole in one of the arms of the fork, the spindle at its other end has the crank attached to it by which it is driven, and near the crank handle a portion of the length of the spindle is made flat so as to enter a slot formed in the opposite arm of the fork; this slot at its bottom is enlarged in order that it may receive the circular part of the spindle. When the end of the spindle has been partly inserted into the hole in one arm of the fork, and the flat part of the spindle dropped into the slot in the other arm, the spindle is moved endwise, and the circular portion of the spindle is then caused to enter the circular enlargement at the bottom of the slot, and is so locked in position ;

" or a circular hole only may be formed in each arm of the fork,
" and the spindle passed through these and through the brush."

[Printed, 4d. No Drawings.]

A.D. 1864, October 3.—N° 2431.

BOUSFIELD, GEORGE TOMLINSON.—(*A communication from David Wilson.*)—"Improvements in machinery used in manufac-
" turing or separating coir fibre from the husk of the cocoa-nut."

The husks, after being softened in water, are crushed between grooved rollers. The upper roller is arranged to rise and fall, so as to admit of the husk being placed under it. The combing machine consists of a drum studded with pins, and made to revolve at a high speed. In front of it are feed rollers, by which the husk can be gradually fed up to the drum. The pins may be on the ends of the drum if preferred. A handful is combed out at one end, it is then reversed, and the end before held is combed. The other side of the cylinder has a casing, in which are doors hung on hinges. After the first combing the fibre is taken to this side, and pressed down between the cylinder and one of these doors, so as to be further combed. A third combing, similar to the second, completes the process. The refuse of the third combing is useful fibre, but not so strong as the finished fibre, which is "a stiff brush or bristle fibre."

[Printed, 8d. Drawing.]

A.D. 1864, October 6.—N° 2457.

OLIVER, CHARLES LANGFORD.—(*Provisional protection only.*)—"Improved apparatus for brushing the hair."

To the spindle of the brush are attached coiled springs which can be wound up, and, when released, cause the brush to revolve. A train of spur wheels is used to increase the speed of the brush.

A brush for brushing ladies' hair is made of such size that its circumference "shall be greater than the length of the longest "hair." All the apparatus, except the brush itself, is covered by a guard, to prevent the hair becoming entangled in it. The brush is fixed in a frame, which runs on a railway laid on the ground about the chair of the patient. It may be driven by the above spring arrangement, or otherwise.

[Printed, 4d. No Drawings.]

A.D. 1864, October 28.—N^o 2671.

GOODALL, JAMES, and GOODALL, PHILLIP.—(*Provisional protection only*).—"Improvements in brushes."

A flexible air chamber is attached to the back of the brush. The top of this chamber may be of wood, and the sides of flexible material. Amongst the bristles are holes through which the air is driven by pressure in brushing, so as to blow away the dust. In brushes with handles, the top of the air chamber may be hinged to the back at the handle end, "so that the air chamber may be most extended in the fore part where the brush is mostly used."

[Printed, 4d. No Drawings.]

A.D. 1864, November 11.—N^o 2805

COCKSHOTT, JOHN.—(*Provisional protection only*).—"Apparatus for cleaning forks and spoons."

"Two side frames or standards support two parallel shafts or axles (arranged by preference one over the other), upon which are keyed, or otherwise fastened, two pulleys or rollers over which passes an endless band on which brushes are fixed transversely, and rotary motion is communicated to one of these pulleys by means of a winch handle fixed on one end thereof. The pulleys, bands, and brushes are enclosed in an outer case or box having two doors (one on each side), and one of the pulleys is provided with moveable bearings adjusted by means of screws, so as to keep the endless band at the proper tension. The spoons or forks are secured by means of a light bar to two boards or rests formed to receive them, and these boards are inserted in the case, so as to bear against the brushes, and the doors are then closed. Upon turning the handle, the brushes, moving with the endless band, will clean or polish the forks or spoons held by the rests. When one side of the forks or spoons is polished, the doors are opened, and the forks and spoons are reversed, and the other side cleaned in a similar manner. The bottom part of the case is formed inside to a semi-circular sweep, and is intended to contain emery or polishing powder, which the brushes take up as they pass."

[Printed, 4d. No Drawings.]

A.D. 1864, November 14.—N° 2838.

OLIVER, CHARLES LANGFORD.—(*Provisional protection only.*)
—“Improved apparatus for brushing the hair.”

The brush is suspended from the end of a horizontal lever, which projects from the top of a standard. At the foot of the standard is a pulley, to which motion is communicated from a treadle. A band passes from this pulley to another at the end of the lever, and another band from the second pulley to the brush, which is thus revolved. The outer end of the lever is supported by a spring attached to the end of a fixed bar over the lever. Or the lever may be dispensed with, and a pair of sliding pulleys mounted on the fixed bar, and drawn towards its outer end by a spring. In this case the driving band passes from the first pulley over these sliding pulleys, and direct to the brush.

For brushing ladies' hair, an endless web, carrying brushes mounted on it, is mounted on two rollers. One of these rollers is driven in any convenient manner, and the other held against the head of the patient. The ends of the band roller are furnished with “broad dishd flanges,” to prevent the hair catching.

[Printed, 4d. No Drawings.]

A.D. 1864, November 29.—N° 2975.

DAVIES, GEORGE.—(*A communication from Léon Monfils.*)—
“Improvements in machines for sweeping roads or ways.”

“The horizontal framing of the machine is in the form of a right-angled triangle, and upon the hypotenuse are mounted the brushes made of ratan, whalebone, or other substance. The brushes are pressed on to the ground by a number of helical springs, which are held down by a horizontal bar of wood, and are capable of rising and falling; the brush frame with the brushes can be raised or lowered by means of a lever provided with a handle. The machine is furnished with one shaft and a rope, by means of which it is drawn along the road, the line of draught being at right angles to the base of the triangle, so that the brushes lie in a diagonal line across the road. As the machine is drawn along, the mud or sweepings collected in front of the brushes will pass along the diagonal line, and will, escaping past the angle formed by the hypotenuse and base of the triangle, be left in a line parallel to the side of the road. If it should be desired to collect the mud or sweepings into

"heaps at intervals, a curved scraper is placed behind the angle
 "last named, which, being raised occasionally by means of a
 "lever, will have the desired effect."

[Printed, 10d. Drawing.]

A.D. 1864, December 1.—N° 2999.

NEAT, JOSEPH.—"An improved mechanical hair brush."

The object of the invention is to produce a brush for brushing ladies' hair by machinery. The brush is made on an endless band which travels over two drums. The drums are fixed each on a standard; one near the ground, and the other at a convenient height for brushing the hair. Motion is given to the lower drum by convenient means, and the upper one is fitted with handles by which it is applied to the head. To take the weight of the upper drum, india-rubber springs pass from it to convenient points of attachment. Along the lower side of the brush is fixed an inclined board, upon which the hair lies when being brushed. The upper drum may be fixed in position so as not to require to be held. A comb which cleans the brush is fixed on the back standard.

[Printed, 8d. Drawing.]

A.D. 1864, December 13.—N° 3085.

BRITTLEBANK, ARTHUR.—(*Provisional protection only*).—

"Improvements in apparatus used when brushing the human
 "hair."

"A frame of a rectangular or other suitable form is used, to
 "which the two bearings for the spindles of rotatory brushes are
 "formed or applied. A pulley having a hollow nave or boss,
 "and suitable for receiving an endless driving band put in
 "motion by manual or other power, is introduced between two
 "sides of the frame. The rotatory brush is placed on a spindle
 "of a square section or other suitable form to cause the brush
 "and the spindle to rotate together when the spindle is put into
 "rotatory motion. The brush is prevented passing beyond a
 "certain point on to the spindle by a fixed collar on the spindle,
 "and the brush is secured on to the spindle by a spring catch
 "or stop. One end of the spindle is passed into, and is keyed
 "or fixed in the hollow boss or nave of the pulley before men-
 "tioned. In using the apparatus the frame is held by the hands

" of the user, and he is thus enabled to apply the brush to the head as the brush is caused to rotate by the endless band."

[Printed, 4d. No Drawings.]

A.D. 1864, December 21.—N° 3167.

BRYANT, CHARLES EDWARD, and MIDDLETON, SAMUEL.—
" A new or improved mechanical apparatus for brushing the hair."

The various parts of the invention are thus described :—

" First part to consist of a chair made of wood or metal, with a treddle placed under connected to a crank, for the purpose of driving a fly wheel affixed to a chair.

" Second part to consist of a roller or wheel to work at the side, back, or over the chair attached thereto, and connected to the fly wheel by a band passing over a wheel at the end of the said roller.

" Third part to consist of an endless elastic band passing over the said roller or wheel, or a non-elastic band made to yield by a spring attached to it.

" Fourth part to consist of an ordinary circular brush, with a grooved wheel at the end to receive the elastic band or belt. The brush to revolve on a spindle passed through the drum of the brush, with fixed and loose handles at each end for the operator to hold.

" By working the treddle the whole of the machinery is set in motion, and the operator can guide the brush to any part of the head.

The Provisional Specification says that " at the side of the said circular brush is fixed another brush to clean the other aforesaid circular brush," but no allusion to this is made in the Complete Specification, though the fixed brush appears in the drawing.

[Printed, 8d. Drawings.]

A.D. 1864, December 24.—N° 3209.

CHEATLE, JAMES HILL.—(*Provisional protection only.*)—" Improvements in rotary and other brushes."

A rotary brush is made with " four equidistant radial series of tufts " of bass, secured between " parallel surfaces." The tufts are equal in length to the diameter of the brush, and cross in the middle, the two series forming four radial rows. Four bars

of angle iron of a length equal to that of the brush are placed in the four angles formed by the crossing of the tufts, and secured by screws. The brush is supported on centres in a frame, which is mounted on wheels. Toothed wheels transmit motion to the brush from the supporting wheels. The brush is intended for sweeping roads, floors, etc.

Other brushes may be made in a similar way by fixing bars between strips of wood or iron. The method is specially applicable to large brushes.

[Printed, 4d. No Drawings.]

A.D. 1864, December 30.—N° 3246.

ROBB, ARTHUR CANT.—(*Provisional protection only.*)—"Improvements in machinery or apparatus for brushing hair."

"This invention relates to machinery for brushing hair, and consists of a metallic or wooden box or case, within which is set, in suitable bearings, an axle carrying a bevelled cogged wheel gearing with a mitre pinion, the shaft of which is extended to support a circular brush, the bristles of which project beyond the limits of the case; to the axle is attached a spiral spring, so that when the axle is turned by a handle the spring is wound up. A break of a semi-circular form is made to act on the shaft by means of a screw lever, so as to control or stop the unwinding of the spring, and a handle is placed at each end of the apparatus for the adjustment of the apparatus to the head. To relieve the weight, india-rubber bands may be suspended from the ceiling, and the apparatus may be rested thereon. By the multiplying toothed wheels a great rapidity of rotation of the brush will be effected, the speed being regulated by the break. If necessary, the space unoccupied in the box may be fitted to carry articles for the toilet."

[Printed, 4d. No Drawings.]

1865.

A.D. 1865, January 7.—N° 61.

HORREX, THEOPHILUS.—"Improvements in brushes for brushing the hair, which improvements are also applicable to brushes for other purposes."

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The back is detachable from the stock in which the bristles are fixed, and is fastened by a screw or catch. The stock is made in separate slips, each slip carrying a row of bristles, and the slips are fastened together by having a piece of canvas glued on behind, so that it will open as on a hinge, between every two rows of bristles. By this means each separate row may be cleaned. Sufficient stiffness is obtained by putting on the separate back, or a wire may pass across all the slips, and so keep the brush stiff. One or more rows of bristles may be fixed to the moveable back, and be used as cleaners for the other rows.

[Printed, 10d. Drawing.]

A.D. 1865, January 25.—N° 214.

ROQUES, CASTIMIR.—"Improvements in the construction of brushes used for brushing the human or other hair, and in the apparatus or means connected therewith."

"The apparatus consists of a rod or shaft upon which a pulley is rotated by the motion of a driving belt, the shaft or rod being furnished with handles, by which the operator holds the brushing apparatus against the head of the person or object to whom it is applied. Upon the rod or shaft there is also fixed a frame of metal, or other suitable material, at each end of which a roller is fixed; upon this frame the brush is stretched, and is caused to travel upon the rollers by means of a belt passing from a pulley connected and driven by the driving pulley on to one of the rollers which carry the brush. When stretched the brush is in the form of an oblong with rounded ends, and in travelling one of its sides is applied to the head of the person or to any other object being brushed, so that, in contradistinction to circular brushes hitherto used, which tangle, twist, and break long hairs or filaments, the present construction results in a continuously-travelling brush, by which these difficulties are obviated, and hairs or filaments of any length can be easily and efficiently brushed. The brush itself consists of a strip of leather or suitable material in which the bristles or wires are fixed."

[Printed, 8d. Drawing.]

A.D. 1865, February 7.—N° 343.

WATTERS, JOHN BUTLER.—"Improvements in machinery or apparatus for brushing the hair."

The invention "consists in the employment of a chair or other convenient seat, on each side of which, or to each of the arms thereof, if an arm chair, is fixed an upright arm or support extending in front of, but higher than the head of the sitter. These arms or supports are each provided with a bearing at their upper ends, and in these two bearers rotates a horizontal spindle or shaft. On this horizontal spindle or shaft are fitted two driving pulleys, the one pulley serving to impart a rotatory motion to the spindle or shaft, whilst the other pulley, which rotates with the spindle or shaft, transmits a rotatory motion, by means of an elastic driving band, to a rotatory hair brush, which is held by suitable handles in the hands of the operator, the elastic band passing round a pulley on the axis of the brush. The rotatory motion of the horizontal spindle or shaft above referred to is transmitted thereto by means of a grooved pulley on a crank shaft working in bearings fitted to the under side of the chair or seat, and actuated by means of a treadle worked by the foot of the operator." The treadle may be arranged to be worked by the person operated on.

[Printed, *sd.* Drawing.]

A.D. 1865, February 16.—No 444.

PICKARD, HENRY JOHN.—(*Letters Patent void for want of final Specification.*)—"An improved machine for cleaning, sweeping, and removing the refuse from highways, streets, and roads or ways, applicable also for removing the leaves of cut grass and other refuse from lawns and other grass lands and walks." The apparatus consists of a cart provided with two wheels working on an axle, on which is also placed two or more toothed wheels, or the toothed wheels may be secured to the spokes or other parts of the wheels of the cart. On the upper side of the toothed wheels or wheel is a smaller toothed wheel provided with a pulley, each wheel and pulley being fast on an axle working in bearings attached to the framing of the cart. At the back of the cart are bearings for an axle, from which radiate lifters or shovels; and further back on the cart are bearings for the axle of a brush, which may extend the width of the cart; the axes of the brush, and lifters or shovels are capable of adjustment vertically, and of sliding in their bearing vertically. The brush and lifters or shovels have rotary motion

“ communicated to them by the employment of a crossed strap
 “ passing round pulleys on the ends of their axles, and round
 “ the pulley or pulleys on the axle of the small toothed wheel
 “ before mentioned. The cart is covered in at the top, and has
 “ an adjustable covering for the brush and lifters or shovels, and
 “ at each side of the cart near the front end thereof is a sliding
 “ shuttle, and when this is raised the refuse or rubbish which has
 “ been gathered into the cart will run out of the holes closed by
 “ the shuttles ; or the rubbish or refuse may be drawn out thereat.
 “ The bottom of the cart is inclined from the centre to the sides
 “ thereof, in order to facilitate the emptying of the same.”

[Printed, 4d. No Drawings.]

A.D. 1865, March 15.—N^o 724.

KENNEDY, THOMAS.—(*Provisional protection only.*)—“ Im-
 “ provements in apparatus for smoke vents or chimneys.”

“ In carrying out the invention a spindle with a pulley loose
 “ upon it is permanently fixed in the top of the smoke vent, and
 “ an endless chain is passed round the pulley and is made of
 “ sufficient length to hang down inside the vent to within reach
 “ at the bottom, where it may be caught upon a hook at the side
 “ when not in use for cleaning the vent. When the vent requires
 “ cleaning, a scraper or brush, or a bunch of heather, for example,
 “ is fixed to the endless chain and is worked up and down the
 “ vent by means of the chain.”

[Printed, 4d. No Drawings.]

A.D. 1865, March 18.—N^o 764.

VERO, JAMES.—(*Letters Patent void for want of final Specification.*)—“ Improvements in brushes or brooms.”

The improvements are in house brooms, scavengers' brooms, &c., and the intention is to enable both ends of the broom to be worn equally. A metal socket is inserted in a vertical hole at the back, or attached to the back by a flange. The upper part of the socket carries the handle, and is bent at the proper angle for that purpose. When the brush is half worn the socket is turned round. Or two holes may be made into the back of the broom and the handle screwed into one or the other as required.

[Printed, 4d. No Drawings.]

A.D. 1865, March 28.—N° 869.

NORRIS, JOHN, junior.—“Improved apparatus for grooming
“ horses.”

A circular brush is fitted on a spindle carrying a pulley. An endless band passes round this pulley and also round a grooved wheel by which motion may be imparted to the brush. The wheel is mounted on a frame capable of swivelling on a vertical axis. A small guide pulley is attached to the spindle of the brush to prevent the endless band slipping off the pulley.

[Printed, 8d. Drawing.]

A.D. 1865, April 1.—N° 920. (* *)

DRINKWATER, JOHN.—(*Provisional protection only.*)—“An
“ improved application of rotating brushes, and in the mechanism
“ and apparatus connected therewith.”

“The improvements consist in the application of rotating
“ brushes to ‘grooming’ or brushing horses and other quad-
“ rupeds,” “and the peculiarity in the mechanism consists in the
“ employment of a thin hollow cylinder or drum attached to the
“ driving shaft by means of light arms or carriers, and covered
“ or coated on its periphery with a surface of leather, india-rubber,
“ composition, or cloth, in which the bristles are to be secured.”
“The brush may be caused to rotate by hand, by securing a spur
“ wheel on the end of the driving shaft, and gearing a larger
“ wheel into it, which may be driven by a handle, projecting
“ therefrom, or bevel wheels may be used, or a band and pulley
“ may be adapted, so as to be driven by steam or other power.
The apparatus is supported in the hand “by means of handles
“ projecting from the central shaft.”

[Printed, 4d. No Drawings.]

A.D. 1865, April 12.—No. 1038.

HAWORTH, JOHN.—“An improved application of rotating
“ brushes to the grooming or cleaning of horses and other
“ quadrupeds.”

A spherical brush is fixed at the end of a long pole. On the pole is a pulley over which an endless cord passes and drives it from a driving shaft actuated by steam or otherwise. At the opposite end of the pole to the brush is a weight to counterbalance that of the brush. Loose handles are mounted on the pole by

which the brush may be applied. The brush should be moveable so that it may be changed.

[Printed, 8d. Drawing.]

A.D. 1865, May 9.—No. 1283.

MAYALL, THOMAS JEFFERSON.—“Improvements in door and other mats, part of which improvements is also applicable to brushes and brooms.”

The inventor describes the part relative to the present series as follows:—“India-rubber, gutta percha, or a compound thereof combined with sulphur to form the back, is taken in sheet, and in the state known as unconverted, and in that state I apply to one surface of it a sheet of canvas or other suitable cloth or material to give tension to the back. This combined backing I then punch or pierce with a number of holes adapted to receive the tufts or portions of hair or other fibre or material, and having applied to the parts of the tufts intended to project a packing of string in coils or other matter adapted to prevent the india-rubber, gutta percha, or other material during subsequent pressure and conversion from being forced in amongst the projecting tufts. I then pass such tufts in their looped state through the holes provided for them with the looped ends to the cloth side of the india-rubber, gutta percha, or compound thereof, and through such loops of the tufts I pass string, wire, or other holding material to aid in retaining the tufts in position. The material with its cloth backing and tufts I then place between suitable moulds, and by the aid of heat and pressure I effect the security of the tufts and the conversion of the india-rubber, gutta percha, or the compound thereof. I prefer to form the moulds for this purpose of what is commonly called soapstone or of fine well-seasoned white pine.”

[Printed, 1s. 10d. Drawings.]

A.D. 1865, May 30.—No 1482.

MARTIN, WILLIAM.—“Improvements in brooms or brushes.”

The invention relates especially to long-handled brooms, and consists in an improved mode of fastening the handle to the stock. At the bottom of the handle is fixed a screw, and a nut is fixed to the stock. Or the handle and stock may have corre-

sponding male and female screws upon them. By this means one handle serves for many brooms.

[Printed, 10d. Drawing.]

A.D. 1865, May 31.—N° 1490. (* *)

BROWNE, THOMAS APPLETON, and KNIGHT, JOHN,—“Improvements in driving apparatus for hair brushing and shampooing by machinery.”

The apparatus consists of a driving shaft, arms, pulleys and bands, and a brush. The shaft works in hangers or bearings and is turned by hand or power in the usual manner. There may be any number of arms; each is placed loosely “on bosses cast to the bearings” or “on the shaft itself,” and it “can be moved either way in a rotary direction;” it carries at the front a two-grooved pulley, one groove corresponding with a pulley fixed to the shaft, the other with the pulley to which the brush is connected. At the back of each arm a short arm projects which is united to a stationary pin by a metal or india-rubber spring; this arrangement causes the brush band “to be always tight in any position in which the brush is placed,” and the front arm “to rise out of the way when not in use.” The spring may be dispensed with by hanging one or more weights on the short arm, or by lengthening the short arm and employing an adjustable weight. Sometimes the short arm is omitted, and the front arm is suspended “by one or more springs to a hook or bolt fixed to an overhead beam,” or it is attached “to a cord or chain passing over guide pulleys and supporting one or more weights.” When this “improved driving apparatus is to be applied to machinery for brushing and shampooing horses and cattle, the arms must be of sufficient length to allow them to move up and down the required distance, and in this case weights must be used to raise the arms out of the way when not in use.”

[Printed, 10d. Drawing.]

A.D. 1865, July 3.—N° 1758.

HURN, GEORGE, and HURN, DANIEL,—“Improvements in the manufacture of mats, matting, and brushes.”

The body of the brush is formed of a fabric of network of wire or fibre, in which are interlaced strips of leather, so as to form loops. These loops are cut, and the strips of leather then take

the place of bristles. The brush thus formed has to be secured to a wooden back.

[Printed, 10d. Drawing.]

A.D. 1865, July 21.—N° 1907.

GARDNER, CHARLES.—(*Provisional protection only.*)—"Improvements in apparatus for cleaning windows."

Vertical rods are fixed at the sides of the windows. Upon these a bar slides, fitted at the end with tubular pieces. This bar carries along its length a brush, which may be pulled upwards against the window to clean it, while a spring draws it down. A horizontal pipe, with jets above the window, supplies water. Instead of rods, grooves may be formed at the sides of the window, and the ends of the bar may slide in them. Or the brush may slide on a vertical plate, and be caused to revolve by means of a rack and pinion, or a pulley round which a cord passes. The brushes may be of any form and of any material, and may have wash-leather between the rows of bristles. The brush may traverse on the horizontal bar, or may extend its whole length. Two brushes, one on each side of the window, may be used, connected by a cord which passes over a pulley at the top. The brush may be made to revolve by friction alone against the surface of the window.

To render the apparatus portable, it may be mounted on a carriage with wheels, instead of being fixed to the window.

[Printed, 4d. No Drawings.]

A.D. 1865, August 8.—N° 2058.

MIDDLETON, SAMUEL.—(*Provisional protection only.*)—"An improved arrangement of machinery for brushing hair."

The inventor thus describes the apparatus:—"The machinery is made and fixed inside a moveable pedestal, and is acted upon by a weight in the following manner:—I make first a hollow pedestal, and fix therein two or more shafts, one parallel and the other or others perpendicular. I connect these shafts by bevel wheels, and upon the parallel one I also fix a small cog wheel, and over or upon it or upon the shaft I work a chain or rope, to which I attach a weight equal to the amount of work required to be performed. The bevel wheel upon the parallel shaft I make much larger than the one or ones upon the up-
right shaft or shafts, which will cause it or them to revolve

" much faster than the one to which the weight is attached, and
 " thereby give ample revolutions to a pulley or pulleys, which I
 " fix to the upright shaft or shafts for the purpose of actuating a
 " brush or brushes by means of a band or bands, as used in the
 " ordinary way for brushing hair. This pulley or pulleys I fix
 " nearly parallel with the head or heads of hair to be brushed by
 " this new arrangement of machinery or pedestal; one or several
 " heads of hair may be operated upon at the same time. The
 " brush or brushes held by the operator or operators may be
 " moved about any part of the head readily, and may be used
 " without the aid of a second person to turn the shafting com-
 " monly used for this purpose. When the weight has descended
 " to the bottom of the pedestal, which I make several feet high,
 " it can be readily and easily raised for a second operation by a
 " rope or handle, which I fix to the parallel shaft. I enclose the
 " machinery, so that it may not be seen. I also arrange the
 " machinery so that I may fix a regulator to regulate the volu-
 " tions of the upright shaft or shafts according to the work
 " required to be done."

[Printed, 4d. No Drawings.]

A.D. 1865, August 30.—N^o 2236.

SMITH, GEORGE, and RITCHIE, CHARLES.—(*Provisional pro-
tection only.*)—"Improvements in brushes."

To make rotary brushes capable of brushing ladies' hair, the
 inventors "introduce at intervals, lengthways of the brush, blades
 " or guards of flexible material, such as vulcanized india-rubber
 " or leather. These blades or guards as they pass round lift the
 " hair out of the bristles, so that at any time it is only the bristles
 " at the part of the brush immediately against the head which
 " penetrate the hair. The guards may conveniently be elastic
 " bands stretched at intervals lengthways of the brush. In order
 " to support and give elasticity to the hairs, bristles, or fibres of
 " a brush," they "pass them through a sheet of vulcanized india-
 " rubber or elastic material, and then fix them in a back beyond, or"
 " support them on each side with flanges of elastic material,
 " such as vulcanized india-rubber fixed in the back of the brush,
 " so as to press and hold the hair, bristles, or fibres between
 " them, and when the material of which the brush is made is
 " rigid, like wire, it may be fixed into these elastic flanges in
 " place of directly into the back of the brush, thus a hard stiff

“ surface is obtained in conjunction with the elasticity due to the india-rubber or elastic flanges. In making a brush to serve as a mat on which to wipe the shoes,” they “ combine with the bristles or hairs scrapers or scraping surfaces, consisting of flanges of india-rubber or elastic material set in the back at intervals, so as to divide up the bristles or hairs into bands an inch or two wide. The scrapers may also in this case be strained bands passing across the brush from side to side; the brush thus constructed will perform at the same time the operations of brushing and scraping.

“ As a brush for sweeping gardens, and for similar uses,” they “ employ a roller with vulcanized india-rubber flanges passing spirally around; it is mounted on a frame like the frame of a moving machine, or of a rotating carpet broom, so that as the frame is drawn or pushed over the ground the roller is rotated, and the elastic flanges then take up any loose dust and throw it into a suitable receiver on the frame, similar to that which in a mowing machine takes the cut grass. A roller with strained bands may be similarly employed.”

[Printed, 4d. No Drawings.]

A.D. 1865, August 31.—N° 2243.

SMEATON, GEORGE.—(*Provisional protection only.*)—“ Improvements in apparatus for cleaning the outside of windows from the interior.”

Two rods are jointed together and have some arrangement by which they can be set at any convenient angle. Each rod carries a runner, and the two runners are connected by an endless cord which passes over pulleys at the joint and at the further extremities of the rods, so that on moving one, the other is moved in the same manner. To one of these runners the brush or other drawer is fixed, the other is held in the hand and serves to move the brush. The rod carrying the brush has wing-pieces to prevent its turning round which pressed against the window. By means of the joint, the brush can be applied to the outside of the window, and actuated from within.

[Printed, 4d. No Drawings.]

A.D. 1865, September 5.—N° 2278.

NEAT, JOSEPH, and FORD, FRANCIS.—“ Improvements in hair brushing machinery.”

Improvements upon Neat's Patent, No. 2999, A.D. 1864.

The operating drum remains as in the original machine, but the other drum is moveable instead of fixed. This is effected "by carrying it with its driving pulley at the extremity of a cranked lever pivoting on the same centre as the fly wheel and driving pulley supported on the standard. As in the original machine a driving band passes from the pulley on the driving wheel to that on the spindle of the grooved cylinder or drum, and power is obtained by means of a compressed treadle coming beneath the chair, so that the person seated may set the machine at work by a simple treadle coming beneath the foot of the hairdresser by a crank on the fly wheel, by steam, or by any convenient method. While the back hair is being brushed, the drum at the end of the lever is left in a line coincident with the angle of the inclined plane supporting the hair, but when the hairdresser wishes to bring the brush to the front of the head, he depresses the opposite end of the lever, which in pivoting brings the drum up to a more horizontal line with the head, and necessarily nearer to it, thus enabling the hairdresser to bring the operating drum to the front, although the foundation of the endless band brush may possess no elasticity. If the opposite end of the lever be sufficiently depressed, the grooved cylinder may be brought above the horizontal line, when the endless band brush will act upon the head with an upward and not a downward action, as in its original position. The lever may be worked by a guide within reach of the person seated in the operating chair, and the drum or the lever be inclined to correspond with the position of the operating drum when brushing the side of the head if desired."

[Printed, 10d. Drawing.]

A.D. 1865, September 19.—N° 2386.

SMITH, GEORGE, and RITCHIE, CHARLES.—(*Provisional protection only.*)—"Improvements in brooms and brushes for sweeping and dusting."

A cylindrical brush is mounted so that it can revolve "transversely of the length of the handle." On the spindle of the brush is a pulley, and at the opposite end of the handle is another. An endless band passes over these pulleys. The lower one may have a handle by which it can be turned, and may have

multiplying gear attached to it. Or the brush may be driven by a spring, wound up from the end of the handle or otherwise. A pan may be fixed to receive the dirt. The brush may also be mounted on two handles, the lower ends of which rest on straps attached to the body of the operator.

[Printed, 4d. No Drawings.]

A.D. 1865, September 22.—N^o 2417.

BRANDRETH, FREDERICK THOMAS, and BRANDRETH, JOHN HENRY.—(*Provisional protection only.*)—"Improvements in machinery for brushing hair."

"In carrying out our invention we propose to use a spring of india-rubber, metal, or other suitable material working in connection with two conducting pulleys attached to two or more pulleys fixed on a cross head working in or on guides or slides, and connected to the ends of the above-mentioned springs, and through these guide pulleys we propose to use a driving band driven from the pulley on the main shaft, and running in connection with a pulley fixed upon a circular brush, so as to be adjustable by the elasticity of the above-named spring at the convenience of the operator."

[Printed, 8d. Drawing.]

A.D. 1865, October 14.—N^o 2655.

HANCOCK, JAMES LAMB.—(*Provisional protection only.*)—"Improvements in apparatus for polishing and brushing."

The inventor says:—

"My apparatus consists of a disc or other brush or polishing tool mounted upon a handle or shaft carrying a toothed pinion, which is geared into by a toothed wheel on a shaft fitted with a cranked handle. On turning the cranked handle, rotary motion will be imparted to the brush. In some cases I dispense with the toothed gear, fit the brush on a shaft with a cranked handle, and employ a collar through which the shaft passes freely, and which is held in one hand while the cranked handle is turned by the other. When using a disc brush I fit on the outer edge of the discharging or flap of leather, india-rubber, or other material to prevent the passage of dust. Or I apply a screen to stop the dust, within which screen the brush rotates."

[Printed, 4d. No Drawings.]

A.D. 1865, November 20.—Nº 2985.

SMITH, GEORGE, and RITCHIE, CHARLES.—“Improvements
“in brushes for hair dressing and other uses, also in brooms and
“apparatus for cleaning, preparing, painting, coating, and
“smoothing surfaces.”

To make rotary brushes which will brush ladies' hair, guards of flexible material are fixed to the brush to prevent the hair being entangled. Elastic bands stretched across the brush may be used for this purpose. Or a casing round nearly the whole of the brush may be used. Or both these methods may be employed. The case or the guards may revolve at a higher speed than the brush.

Brushes may be made by passing the bristles through a sheet of vulcanized rubber, and fixing them into a back beyond, or “flanges” of elastic material may be fixed so as to hold the bristles between them. By these means greater elasticity is given to the fibres. In wire brushes the wire may be fixed into the elastic material alone.

A “smoothing surface,” such as a flat band or a tube of vulcanized rubber may be fixed along one side of the brush “to follow the bristles.” The backs of brushes may be covered with india-rubber to make polishing surfaces. A brush to serve as a mat may be made with alternate bands of bristles and rubber. Other smoothing apparatus is also described.

Rotary brushes for sweeping are mounted with a roller or a pair of wheels behind the brush, so that the brush can be raised or depressed by depressing or raising the handle. A receiver for dust is attached as usual. A smoothing surface may be attached to the brush, viz., a band or tube of rubber. For sweeping gardens a roller with spiral rubber flanges is used, mounted in a frame like a carpet sweeper. The flanges pick up grass, etc., and throw it into the receiver. A “roller with strained bands” may also be used.”

For sweeping and dusting, a cylindrical brush rotates at the end of a handle. It is driven by an endless band working over a pulley on its axle, and over another pulley at the other end of the handle. The lower pulley has a handle on it, and may have multiplying gear. Or the brush may be driven by a spring. There may be two handles, and two sets of pulleys, etc. A dust receiver may be attached. Water may be supplied to the top of

the brush from a hose, and run into a reservoir attached. For painting, a reservoir is fixed, within which the brush partly revolves. This is kept filled by "a bird fountain arrangement," or the brush may be supplied by a cylinder rotating in the liquid. For washing fabrics, two disc brushes revolve in opposite directions, one above the other, within a truck, which may be filled with soap and water, or for other purposes, with other liquids.

[Printed, 1s. 6d. Drawings.]

A.D. 1865, November 21.—N^o 2994.

SMITH, GEORGE, SMITH, GEORGE, junior, and SMITH, CHARLES WILLIAM.—"Improvements in hair-brushing apparatus."

The object of the invention is to adapt rotary brushes for use with long hair. The bristles are set in separate bars, which are arranged to form a brush. Each bar has "at one end apparatus, such as is used in feathering paddle wheels" or any similar apparatus, which will cause the bristles to stand out radially at one part of the circumference, and be laid down at another. By this means as each row leaves the hair it bends back and releases it, instead of carrying it round. The motion may be imparted gradually or suddenly to each row. In one arrangement described, the bars are drawn inwards by india-rubber springs, and driven outwards by an excentric through slits in an outer case. Any other device for giving either a rocking motion, or a to-and-fro motion, to the bristles may be employed. An "endless apron" may be combined with the brush, and have its inner end working close against the brush, so that it acts as a stop to the hair, motion is given to the apron, "so that the surface on which the hair touches travels away from the brush," and consequently the apron straightens out the hair it touches.

[Printed, 1s. 8d. Drawings.]

A.D. 1865, November 29.—N^o 3060.

STOKES, JAMES, and GRAY, THOMAS.—(*Letters Patent void for want of final Specification.*)—"Improvements in the manufacture of brushes."

"This invention relates to all kinds of circular brushes, but has particular reference to those used for millwork, and employed in various manufactures for polishing.

“Heretofore these brushes have consisted of a single stock, in which have been bored a certain number of holes, and into the holes so made have been drawn the bristles or fibres, the said bristles or fibres being secured therein by wire.

According to this invention “two stocks are used, and our improvements consist in fixing or securing the bristles or fibres without boring any holes in the stocks, and affixing the bristles or fibres without ‘wiring’ them.

The bristles or fibres which are to be employed are arranged round a wire ring of suitable diameter, and in such manner that the two ends of each of the bristles or fibres may meet outwards. On either side is then placed a wooden or metal stock of larger diameter than the said wire ring, but smaller in diameter than the brush so formed. The two stocks are then secured together by screws or otherwise, when the bristles or fibres will be held firmly in their place, and the invention is complete.”

[Printed, 4d. No Drawings.]

A.D. 1865, December 13.—N° 3216.

BARBER, GEORGE.—(*Provisional protection only*).—“Improvements in the construction of door mats, flesh and bath brushes, made principally of india-rubber.”

These articles are constructed “by taking strips, lengths, or pieces of india-rubber, or any of its preparations or compounds, and placing them alternately with or between strips, lengths, or pieces of suitable rigid material or materials, either solid or hollow, such as wood, iron, papier mâché, vulcanite, or gutta percha,” and “allowing the former, that is, the india-rubber, to project above the latter in straight lines lengthwise or across the mat or brush, or in various angular or other ornamental devices. The whole of the strips, lengths, or pieces are tied together by bolts passing through the whole or part of them, or they are screwed or clamped in an outer frame.

“The projecting portions of the strips, lengths, or pieces of india-rubber, or any of its preparations or compounds, are formed or constructed so as to present a considerable number of edges, points, or exposed surfaces by being split, notched, bevelled, pointed, or otherwise formed with ornamental or other terminations, for the purpose of enabling the cleaning to be

"effected by the several articles in a speedy and effectual manner."

[Printed, 4d. No Drawings.]

A.D. 1865, December 23.—N° 3325.

NEWTON, WILLIAM EDWARD.—(*A communication from Henry Wurtz.*)—"Improvements in the preparation of glue or gelatine so as to render it insoluble in water, and applicable by the admixture of other substances to various purposes.

Gelatine is heated "in the form of a strong solution in water together with a strong solution of "chromic acid or of an "alkaline bichromate."

By this process it becomes insoluble in water. In this state it may be employed (amongst other purposes) "for coating, hardening, and stiffening the fibres of brooms and brushes." By the addition of other ingredients, a solid material, capable of being moulded, may be formed, but no application of this to any purpose connected with the present series is mentioned.

[Printed, 6d. No Drawings.]

1866.

A.D. 1866, January 10.—N° 79.

TURNER, CHARLES.—(*Provisional protection not allowed.*)—"Improvements in apparatus for brushing the hair of man and animals."

The invention "consists in the application of a balance lever carrying at one extremity grooved pulleys, over which the endless band for driving the brush passes, it also passes over pulleys on the centre shaft or fulcrum, on which the lever turns, and which are driven by another band by steam or other power. The band driving the rotating brush also passes over a pulley mounted on a fixed fulcrum, towards and from which the pulley on the lever oscillates according to the tension on the driving band, and as the rotary brush may be raised or lowered in its application, the counterbalance or weighted arm maintains a nearly uniform tension of the band, at same time permitting a rise or fall of the brush, say four or five feet."

"When this apparatus is applied to the grooming of animals," the strap that drives the rotating brush is passed "over two additional grooved guide pulleys disposed below the lever so as to keep the strap away from the animal while it is being brushed underneath. An arrangement is also made for shifting the whole apparatus along so as to reach either end of the animal without moving it. The rotary brush for animals will also be provided with a long handle, so that it may be held and applied in an overhanging position, while for brushing human hair it will be applied much in the ordinary manner." "A pair of hooks is provided in a position pendant from the balance lever fulcrum on which to rest and lay the brush and axis when not held in the hands for use."

[Printed, 4d. No Drawings.]

A.D. 1866, January 15.—No 139. (* *)

MORIARTY, CORNELIUS.—"Improvements in the construction of tube brushes used in cleaning the tubes of marine, locomotive, and all kinds of multitubular boilers."

The invention relates to improvements in the "construction of tube brushes for which a Patent was granted to" the inventor in the year 1856, being that numbered 1534, and dated June 30th, these brushes having the wire, hair, or whalebone, or other suitable material constituting the brushing or scrubbing part of the instrument, placed in a compact mass in the form of a screw or helix, which has sufficient pitch and space between the thread or threads of the screw to admit of the brush being screwed in through the ferrule of the tube." "The wire, bristles, or whalebone of the brush is further disposed in greater quantities in the middle of the length of the screw, so that it presents greater stiffness and stability in the middle than at the ends." These brushes are made "by combining and securing the wire or other brushing material (which is first cut to any given length to suit the diameter of tube for which the brush is required) between two, four, six, or other number of wires (or other forms of iron adapted to hold the brush material and to form the body of the brush) placed at right angles thereto," and twisting such wires or other forms of metal forcibly together, so as to "form a spiral or screw of the required pitch, in order that the wires or other forms of metal constituting the body or frame of the brush shall hold the brushing material firmly

BRUSHING AND SWEEPING.

between them." To construct them, the inventor says, "I interpose between such body wires and the brushing materials thicknesses of india-rubber or other soft elastic material, which imparts a better hold, and prevents the brushing wires or fibres becoming disengaged."

[Printed, 8d. Drawing.]

A.D. 1866, January 25.—N^o 252.

GARDNER, HENRY.—(*Provisional protection only.*)—"Improve-ments in machinery or apparatus for cleaning the bottoms of ships and other submerged structures."

A "framing" is formed, which can be let down against the ship's side. A shaft on it receives motion through suitable gearing from a shaft or deck. "The first-mentioned shaft carries a series of wheels, the peripheries of which are shaped to receive links or other like appliances to which laths are connected; the laths are formed with or carry teeth, scrapers, or brushes, which are caused to press against and remove all impurities from the ship's side. "The laths pass round other wheels attached to another shaft" on the framing. This latter shaft is moveable so that the cleaning apparatus may be adjusted against the ship. Or only one shaft may be employed. Scrapers, brushes, and teeth, may be in one framing or on separate framings. Propelling power may be adapted to the apparatus, so that as it works it moves on to a fresh place. "The laths may be fitted with springs to allow them to yield should they press too heavily."

[Printed, 4d. No Drawings.]

A.D. 1866, February 21.—N^o 537. (* *)

BAYLISS, HENRY.—(*Provisional protection only.*)—"This invention relates to the construction of wire brushes, suitable for cleaning gun barrels, the tubes of steam boilers, and other tubular articles. It is described as follows:—"I take a flat ring of bra or other metal of about one-half the diameter externally which the finished cleaner is intended to have. I take a series of short length of fine wire (the wires being somewhat longer than the diameter of the finished cleaner) and arrange them in the ring in a tubular form. I bend the wires outward of the ring, thus making one-half of each w

“ against one of the flat sides of the ring, and the other half of
 “ the wire against the other flat side of the ring. The doubled
 “ wires are thus made to lie radially on either side of the ring in
 “ the position of the bristles of a rotary brush. The ring of wires
 “ may be fixed to a cylindrical holder by a screw passed through
 “ the ring and taking into the end of the holder, the ring being
 “ held between the head of the screw and the end of the holder.
 “ Any required number of the rings of wire may be strung upon
 “ a screw of sufficient length, and bound together by the screw
 “ taking into the holder. I prefer to put metal washers between
 “ the different rings of wire in order to keep them a short
 “ distance apart. By combining together a series of the rings of
 “ wire a cylindrical cleaner of any desired length may be made.
 “ I employ either steel, iron, brass, or german silver, or other
 “ wire.”

[Printed, 4d. No Drawings.]

A.D. 1866, February 24.—N° 582.

PULVERMACHER, ISAC LOUIS.—“ Improvements in means
 “ and apparatus for producing and applying galvanic currents.”

The inventor says :—

“ For momentary medical application of elastic currents, I
 “ further make galvanising frictional brushes by rolling tapes of
 “ felt, india-rubber, or any other suitable material in an oval or
 “ round spiral so as to fasten tightly throughout its length a thin
 “ strip of tin, silver, or platinum, which is broader than the tape,
 “ and thereby projects slightly on one side. A round or oval
 “ block is thus formed, which I then fasten on a handle in the
 “ ordinary manner after a thin plate of the same metal has been
 “ laid under the base of the block in order to establish metallic
 “ contact between the projecting metal strip and the plate. The
 “ latter is brought in connection with a metallic hook or other
 “ means of fastening for establishing means of conducting elec-
 “ tricity to the metallic strip from a battery placed in the handle
 “ or separately. Instead of a metallic strip I use handles of thin
 “ metal wires compactly tied together with fibrous threads, or
 “ with an india-rubber envelope, so as to form a cord of metallic
 “ and non-metallic soft materials. This cord I cut into pieces,
 “ which are fixed on a handle and brought in metallic connection
 “ with a hook as before described.”

[Printed, 1s. Drawing.]

A.D. 1866, March 1.—N° 620. (* *)

HENTON, SAMUEL, and HENTON, CHARLES JOHN.—(*Provisional protection only.*)—"Improvements in rotary brushes and apparatus for brushing, currying, or dressing the skin or hair of animals or hides."

This brush or currycomb or combination of the two is made as follows: the cylinder or endless band of the brush is furnished with a series of hard or soft bristles or hairs and bars or combs of metal or hard substances combined in alternate lines either parallel with, or set at an angle to the axis of rotation, and arranged in proportions suitable to the nature of the skin, hair, or hide to be operated upon."

[Printed, 4d. No Drawings.]

A.D. 1866, March 7.—N° 692.

MACHIN, WILLIAM, and MACHIN, SAMUEL.—"An improved apparatus for cleaning ship's sides and bottoms."

"Upon a hollow metal cylinder of suitable size, tapered at each end," is affixed "a certain number of metal flanges curved after the manner of a ship's screw;" upon these flanges are placed either brushes or scrapers, or if needful, both. "Through the centre of the said hollow cylinder goes a strong metal pin, which is to form the axis upon which the said cylinder is to revolve; the said apparatus is then held in a suitable framework of iron."

A line is passed "under the keel of the ship forwards, by means of which the apparatus before described is brought under the ship's keel. Another line is attached to the said apparatus and also to the jib loom or other convenient forward part of the vessel to prevent the said apparatus from being carried aft. The motion of the ship will now cause the said apparatus to revolve with considerable velocity, and being hollow it will naturally have a tendency to rise to the surface of the water, but its position is from time to time regulated by means of the lines by which it is held, and in this manner it can be made to operate upon any parts of the ship's sides or bottom under water where it may be needed." The cylinder may be of any suitable metal, but by preference, zinc or galvanized iron is used.

[Printed, 8d. Drawing.]

A.D. 1866, March 19.—N^o 805.

HIGGINBOTTOM, JOHN. — (*Provisional protection only.*) —

“Improvements in the construction of brushes for polishing paper, prepared for the manufacture of paper hangings.”

The invention “consists in substituting metal wires or wire cards for the bristles hitherto employed in the manufacture of such brushes. The wire cards may be made of steel iron, or other suitable metal possessing the requisite hardness and elasticity, and they are set in a woollen cloth, or other elastic back in the same manner as the wire cards now employed in cotton machinery; or fine wires may be set in a rigid back as in brushes made of bristles.”

[Printed, 4d. No Drawings.]

A.D. 1866, April 2.—N^o 939.

TURNER, CHARLES.—“Improvements in apparatus for rotary brushing and rubbing.”

The pulley from which motion is given to the apparatus is fixed in a bracket above the level at which the brush is to be used. On its axis is a bent lever whose arms are represented at an angle of about 135° with one another. One end of the lever carries a weight, the other a pulley. A third pulley is fixed in a convenient position above and in front of the main pulley. An endless cord passes from the main pulley round the pulley on the lever, thence round the second pulley, and thence round a pulley on the spindle of the brush. By this arrangement when the brush is drawn down the weight on the lever is raised, and so it keeps the cord stretched, yet allows the brush to be moved into various positions. The same object may be attained by making the driving band, after it has taken a turn round the driving pulley, be carried over pulleys to any convenient place when it can support a weight suspended on a pulley. With slight modifications this last apparatus can be made portable and adapted to screw on a table. Any of the apparatus may be used for grooming horses, for brushing human hair, and other purposes.

A rotary brush may be driven by contact with a grooved pulley, the groove being large enough for its edges to overlap the brush on each side and work against surfaces on each side of the brush. The axles of the brush and the grooved pulley are

joined by bars on which are handles, and by making a joint in these bars the brushes may be changed.

[Printed, 1s. Drawings.]

A.D. 1866, April 2.—N° 943.

VORS, MARIE PIERRE ERNEST.—“An improved instrument for cleaning pipes used in smoking.”

A metal rod is covered with caoutchouc, so as to be sufficiently flexible to pass along the stem of the pipe. It may be of various shapes, spiral and other, and the end may be formed into a brush of “a bundle of filaments.” It may be of any suitable material.

[Printed, 6d. Drawing.]

A.D. 1866, May 31.—N° 1517.

CUNNINGHAM, ALBERT ROBERT.—(*Provisional protection only.*)—“Improvements in shaving brushes.”

A channel leads from the back of the bristles into a chamber which may contain soap. In this chamber a “pusher” works to drive the soap down to the bristles. This “pusher” is actuated by a screw, a spring, or otherwise. Or part of the handle may be formed of “resilient material” which may be pressed upon to drive out the soap.

[Printed, 4d. No Drawings.]

A.D. 1866, June 11.—N° 1592.

PARKES, ALEXANDER.—“Improvements in the manufacture of brushes.”

“In order to manufacture the backs of brushes from plastic materials or from materials which may by pressure and heat, or otherwise, be compressed into form, such as the material now well known as ‘parkesine,’ clays, and other matters, a mould is employed, in one part of which are a number of pins or projections corresponding with the number of tufts or bristles or of other materials, and in another a series of wires or mandrils at right angles to the pins or projections which produce the holes to receive the tufts; these mandrils or wires produce the horizontal passages for the passage of the materials by which the tufts are secured in their holes. When the material is used in a plastic state, it is introduced into the parts of a mould and pressed therein so as to enter and fill

" all parts of the space enclosed by the parts of the mould, and
 " which are not occupied by the projections or pins and the
 " wires or mandrils above mentioned. When sheets of material
 " capable of being rendered soft and of taking form in moulds
 " by heat and pressure, or otherwise, are used, two or more layers
 " or sheets of such materials are introduced into moulds arranged
 " as above explained, and subjected to pressure and to heat,
 " or have solvents or cement applied, so that when subjected to
 " pressure in the moulds the sheets, layers, or parts may be
 " made to combine and take the form of the interior of the
 " mould used, and have also formed therein holes to receive the
 " tufts and passages to receive the fastening materials." A
 description is given of various methods to be employed in the
 manufacture.

[Printed, 4d. No Drawings.]

A.D. 1866, July 2.—N° 1761.

STAUFEN, WERNER.—"Improvements in the treatment and
 " application of vegetable fibres."

Certain plants are treated to obtain fibres. These plants are:
 " attalea funifera, leopoldinea piassava, caryota urens, agava
 " Americana, arenga saccharifera, cocos nudifera, tillandsia
 " usneoides."

"The plants are boiled in an alkaline solution for a longer or
 " shorter period (say from half an hour to two hours) as may
 " be required to remove the resinous, gummy, woody, or extra-
 " neous or other matter adhering to the fibres. The fibres when
 " removed from the solution are placed in a bath containing
 " a mordant preparatory to dyeing." In dyeing these fibres, the
 inventor mixes with the dyeing solution "a certain proportion
 " of soapy matter, mixing about one to four pounds of oil soap
 " in the solution for every hundred pounds of material to be dyed.
 " When dyed the fibres are dried in the open air or by artificial
 " means, and then subjected to the action of suitable machinery
 " for opening, combing, straightening, and polishing the fibres,
 " as well understood in flax dressing and other treatment of
 " fibrous matters; the fibres are ultimately separated, sorted, and
 " selected for the purpose required. If to be used as a sub-
 " stitute for bristles in the manufacture of brushes the coarser
 " fibres are selected and left straight." Reference is made to

1279, A.D. 1862.

[Printed, 4d. No Drawings.]

BRUSHING AND C.

A.D. 1866, July 16.—No 1856.

SOANS, RICHARD.—Machine for dressing fruit. Fruit is delivered from an inclined hopper into a funnel within which works a rotating brush. The fruit falls on a shelf in the funnel, and is swept from it down a shoot. The discharge opening of the hopper has a slide to regulate the fall of the fruit. Below the shoot is a funnel-shaped sieve, against and within which works a brush of similar shape, mounted on a central vertical shaft which receives motion from the shaft on which the first rotating brush is mounted. Around the bottom of the shaft are openings in the frame of the brush. The fruit falls on the outside of the brush, and passes through the central openings to the sieve, against which it is driven by the working of the brush. The fruit is carried up the sides of the sieve and discharged over its edge into a convenient receptacle, while the dirt is driven down through the sieve.

[Printed, 8d. Drawing.]

A.D. 1866, July 24.—No 1919. (* *)

GEDGE, WILLIAM EDWARD.—(A communication from Alexandre Philippe Eugène Fleurquin.)—(Provisional protection not allowed.)—"An improved sweeping machine or apparatus."

This improved machine "has but one wheel, and is intended to be worked by manual labour. It is formed of brushes of between 4 and 5 inches in breadth by about 6½ feet long." "The number of these brushes is regulated by the nature of the work to be performed, and the brushes themselves are attached beneath a sort of flat hand barrow," the shafts of the machine being moveable, and so contrived that they may be "suited to the height of the person working it."

"The invention consists particularly in the arrangement of the brushes or other parts to be used for sweeping, in combination with a single wheel, so as to constitute a sweeping machine working by manual power."

[Printed, 4d. No Drawings.]

A.D. 1866, August 6.—No 2020. (* *)

SMITH, WILLIAM.—"An improved horse-road scraper brush."

"This invention certain framing mounted on wheels carrying which are each connected to a bent bar"

ing at the end farthest from the scraper a kind of socket through which a horizontal bar passes, this bar thus serving as a fulcrum for the scrapers, and the edges of the latter (when at liberty) resting upon the road. The scrapers are placed in line with each other, but such line forms a diagonal with the axis of the machine, and as the latter is drawn along, this arrangement causes the greater part of the mud or refuse, as the latter is acted upon by the scrapers, to pass to one side of the road being cleaned, a number of circular brushes, mounted on an axis behind the scrapers, completing the cleansing of the road; the axis of these brushes being parallel with the bar on which the scrapers are mounted, and themselves also passing the refuse collected by them to the same side of the road as that gathered by the scrapers. The latter may be raised from the road when requisite by means of a bar passing under the arms to which they are connected, and which is itself supported by arms mounted on the same fulcrum as the scrapers, another bar, similarly arranged above the scrapers, being used to press down the latter when desirable, these bars being actuated by levers which may be moved by hand; the last-mentioned bar, however, pressing upon the scrapers through the medium of springs connected to the arms which sustain them.

[Printed, 8d. Drawing.]

A.D. 1866, August 27—N^o 2200.

LAMB, EPHRAIM.—(*Provisional protection only.*)—"Apparatus for cleaning and polishing boots and shoes, such apparatus being also applicable to other purposes."

Upon a spindle which is revolved by any suitable means, wheels are mounted, having on their sides brushes. The wheels or the brushes may be moveable, so that different brushes for cleaning, blacking, and polishing, may be used. If more than one wheel is used, the space between the wheels is sufficient to admit the boot, either on the last, or on the wearer's foot. A wheel having a brush on its periphery may be used for cleaning the front of the boot, and an endless band stretched over rollers, for cleaning the heel. Bars may be arranged to support the boot. The apparatus may be rendered portable, and either a rotary brush or an endless band brush or rollers may be turned by a winch, and used for any purposes. A rod may carry a rotary brush, mounted on a spindle at right angles to the rod, and at one end of it. The brush is driven by a band from a pulley at the other end of the rod. The

pulley is turned by a handle. This apparatus may be used for any purposes. The rod may be jointed or telescopic.

[Printed, 4d. No Drawings.]

A.D. 1866, September 5.—N° 2284.

VAUGHAN, REGINALD SAMUEL MORDAUNT.—(*Provisional protection only.*)—"Improved apparatus for cleaning and polishing boots, shoes, and knives."

"To the lower end of a vertical shaft a circular disc is attached eccentrically, so as to revolve therewith as herein-after mentioned. The disc is placed in the rectangular box of wood, cast iron, or any other suitable material, such box, together with the other portions of the apparatus, being supported by means of suitable framing, in which are placed slides or other analogous contrivances, in or upon which the before-mentioned rectangular box can work as herein-after mentioned. Upon the vertical shaft being caused to rotate by means of wheels and gearing, actuated by any suitable motive power (as well understood) the revolution of the eccentric disc will be effected, and the rectangular box moved thereby alternately backwards and forwards with any desired degree of rapidity. For the purpose of cleaning and polishing boots and shoes, brushes of any suitable form and of any desired degree of hardness are attached to the lower surface of the rectangular box, such brushes being affixed to the same, so as to be readily removable for the purpose of substituting brushes of a different character. For the purpose of supporting the boots and shoes when being cleaned or polished, rests, bars, or sockets, the height and position of which are capable of being adjusted and regulated by means of screws or other contrivances adapted for the purpose, are employed. The boots and shoes should, of course, be placed on trees or lasts previously to being submitted to the operation of the apparatus. For cleaning knives, a board provided with a suitable prepared face is attached to the lower surface of the rectangular box."

[Printed, 4d. No Drawings.]

A.D. 1866, September 21.—N° 2429.

CHALLINOR, THOMAS.—(*Provisional protection only.*)—"Improvements in machinery or apparatus for cleaning and polishing boots and shoes, harness, and other manufactured leather goods."

“ According to this invention it is proposed to employ a series of circular or endless brushes, which are mounted upon a revolving spindle or shaft driven by a foot lever and crank or by other convenient means, the said brushes being caused to operate continuously in one direction upon the surface of the article to be cleaned and polished. The blacking or other polishing material is contained in a suitable reservoir, and is applied to one of the series of brushes as required, by means of a feeding brush, which is carried by parallel levers, and is capable of being depressed so as to take up the requisite quantity of blacking, and of being then elevated by spiral or other springs. When thus charged, it is brought in contact with the surface of the blacking brush by turning over partly the parallel levers, which on being released return to their original position again, the feeding brush being thereby carried out of the way of the other brushes. The article to be operated upon is first submitted to the action of the cleaning brush, and is then subjected to that of the blacking brush, whence it is transferred to the polishing brush which puts on the final polish; other brushes or rubbers may, if desired, be added for the purpose of facilitating and expediting the cleaning operation.”

[Printed, 4d. No Drawings.]

A.D. 1866, September 22.—N^o 2436.

DIMOCK, IRA.—(*A communication from “The Florence Manufacturing Company.”*)—“Improvements in brushes and in their manufacture.”

The handle is formed of composition, and the bristles secured in it by one operation. A plate of the depth of the protruding part of the bristles is perforated with a proper number of holes. These holes are filled with bristles, the ends of which protrude so that they can be fixed in the back. If the face of the brush is to be even, the surface on which the perforated plate rests is level, corrugated if the bristles are to be uneven in length. The composition of which the back is formed is then placed over the protruding ends of the bristles, and a mould forced upon it to give it proper form. A strengthening piece of solid material may be inserted in the composition. Backs or handles for brushes may be moulded so as to receive a “block drawn with bristles in the ordinary manner.” The composition preferred is shellac and woody fibre, but any composition which hardens under pressure and exposure may be used.

[Printed, 8d. Drawing.]

A.D. 1866, October 15.—N° 2661.

HOLNESS, STEPHEN.—(*Provisional protection only.*)—"Improvements in the mode or modes of rotating brushes or other articles for which a circular or revolving motion is required."

The invention "consists in mounting upon a central horizontal spindle provided at each end with a suitable handle, a tube, case, or frame; the spindle is cut or divided transversely at the centre or other convenient place. The tube, case, or frame can be held rigidly by one (say, the left) handle, but that portion of the spindle attached to the right handle can be and is moved or rotated along with and in the same direction as the right handle; in so doing a spring attached to the spindle and also to the tube, case, or frame is coiled or compressed, and is prevented from slipping by a ratchet and pawl arrangement. In the spring is thus stored the power to drive the apparatus, and the endeavour of the spring to uncoil is taken advantage of to drive or rotate an outer tube, casing, or frame through a train of tooth wheels. The outer tube, casing, or frame is so constructed as to carry upon its outer surface the brush or brushes, rubber or rubbers, or other article to which it is desired to give a rotary motion. By holding the left handle firmly and turning the right from the body, the spring will be coiled, and the outer tube, casing, or frame rotated, so that, in point of fact, the apparatus is wound up at the same time it is used, and the speed may be regulated at the will of the operator. Instead of coiling the spring, the same end may be obtained by uncoiling or extending the spring, and obtaining the motion by the effort of the spring to recoil."

[Printed, 4d. No Drawings.]

A.D. 1866, October 26.—N° 2761.

DÉBAUCHÉ, JEAN PIERRE.—(*Provisional protection only.*)—"An improved cylinder brush for waxing apartments."

The inventor says :—

"This mechanical cylinder brush is composed of two semi-circular brushes fitted to a cylinder in which passes an axle, this axle also extends to and passes through another cylinder carrying a brush, which I term the angle brush. To set this cylinder brush in motion, I use the following mechanical arrangement :—I give motion by a crank to a toothed wheel which turns a second wheel fixed at the upper end of a vertical

“ rod ; this rod sets in motion a third wheel which transmits it to
 “ a fourth fixed to the cylinder and traversed by the axle above
 “ mentioned, at this moment the axle acts and the cylinder brush
 “ works. The framework of the apparatus is of cast iron ; a cross
 “ bar joined by an ellipse is used to strengthen the apparatus,
 “ and behind the uprights is fitted a roller to assist in directing
 “ the cylinder brush and also in order that the centre of gravity
 “ may be placed so that the small apparatus is always perpendicular
 “ to the floor. A handle is fitted to the upper part of the
 “ framing to permit the person using this mechanical cylinder
 “ brush to direct it as may be required.”

[Printed, 4d. No Drawings.]

A.D. 1866, October 30.—N° 2800.

CHURCHMAN, HENRY, and BRABY, FREDERICK.—(*Provisional protection only.*)—“ Improvements in machinery or apparatus for cleaning boots and shoes, also applicable to the cleaning of other articles.”

Various arrangements of brushes are described. Six discs, each two of which “ have a concave brush surface formed between them ” are mounted on a spindle. The brushes may be partly on each of the two discs, or on a flexible material fastened on them. Each pair of discs is separable, and their movement is regulated by springs, or screws and springs. The brushes are suited for cleaning, blacking, and polishing boots respectively. The boot is held on a slide, and pressed against the brush by a spring. Or each brush may be on a separate axle, and the brushes may be arranged to act two of them at once upon the boot. Bristles may be placed on the circumference of the discs, and the brushing surfaces may be of any shape. Or one large wheel may have three sorts of brushes on it, so that the boot is finished by a single turn of the wheel. Or two discs may be mounted on an axle with a smaller cylindrical brush between them, so that the whole boot is cleaned at once. Brushes of three sorts may be fitted on these discs in an annular arrangement. The apparatus may be driven in any convenient manner. A plate for scraping off dirt may be attached. Similar apparatus may be used for polishing plate, etc. Instead of bristles other suitable materials may be employed for the polishing surfaces.

[Printed, 4d. No Drawings.]

A.D. 1866, October 30.—N° 2812.

BROWN, FREDERICK.—(*Provisional protection only.*)—"Improvements in the manufacture of brushes."

For forming the backs of brushes, "paper or paper stuff, papier mâché, or fibrous compound" is employed. The method preferred is to employ "sheets of paper cemented together. From the paper boards thus produced the backs or blocks for brushes are cut," which "are prepared with oil and treated in the ordinary manner for japanning, and japanned in the usual way." They may be ornamented with pearl, etc. in the usual manner. The holes for the bristles may be made after the back is finished, or wholly or partially during the process of manufacture.

[Printed, 4d. No Drawings.]

A.D. 1866, October 31.—N° 2817. (* *)

WELTON, THOMAS.—(*Provisional protection only.*)—"A new metallic brush."

This invention relates to the construction of "a metallic or partially metallic brush, for the purpose of extinguishing fires in and the better cleansing and sweeping flues and chimneys, and also for the better cleansing of the public roads, thoroughfares, and dwellings."

The brush "may be of any form or size, and the improvement claimed consists in the substitution of spiral springs, metal wires, or light bars of metal (crinoline steel in preference) inserted, as may be most convenient, into a metallic or wooden stock in lieu of canes, bass, hair, whalebone, bristles, or other materials."

[Printed, 4d. No Drawings.]

A.D. 1866, November 3.—N° 2861.

CHAMBERLAIN, MATTHEW.—"Improvements in the manufacture of brushes and brush surfaces composed of india-rubber, gutta percha, parkesine leather, or other similar elastic or flexible material."

The india-rubber is prepared for vulcanization in the usual way. The back and the brushing part are both of india-rubber, but the proportion of sulphur, etc., is different, so that the brush may be softer than the back. The brush part is composed of

strips of india-rubber, slit or cut so as to make "a row of ends." These strips are preferably made with a bevilled edge, so that the "ends" may be pointed. The strips are cut into lengths and placed side by side, or rolled up. They are then cemented to the back, and the whole is vulcanized. Or short pointed "lengths" of rubber may be used, arranged in tufts or otherwise in any manner preferred. Brushes may also be formed from strips of leather or "parkesine" in the same way as from india-rubber strips. These strips are to be fastened on handles of any suitable material. Or strips of "parkesine" or leather may be used instead of bristles. Backs for brushes may be made with two or more thicknesses of hard and soft india-rubber, so as to give elasticity to the back. "Woven fabric" may be cemented to "the back of india-rubber brush surfaces," to admit of such surfaces being fastened to backs of wood. Rotary brushes may be formed of discs cut from rubber, "parkesine," etc., and may have "projecting ends round their circumferences." A number of these discs are mounted on an axle. Discs of wood may be interspersed.

The Provisional Specification says that rotary brushes may be moulded out of india-rubber with "pointed brush surfaces" upon them, but this method is disclaimed in the complete Specification.

[Printed, 8d. Drawing.]

A.D. 1866, November 7.—N^o 2886.

DARLOW, WILLIAM, and SEYMOUR, PHILIP WILLIAM.—
"A new magnetic compound applicable to the manufacture of articles suitable for curative and other beneficial and useful purposes."

The compound consists of "gummy, resinous, bituminous, glutinous, or other suitable adhesive substances combined with magnetisable or magnetic particles." This is moulded to the required shapes, or magnetized in any suitable manner. India-rubber is preferred as the article for holding the magnetic particles.

The complete Specification does not allude to the employment of the compound in the manufacture of brushes, but it is stated in the Provisional that it may be "applied to" or "employed in the manufacture of" hair, tooth, and flesh brush. *It may also be used for "horse brushes."* The effects are :

to be enhanced when the rubbing surfaces are made of india-rubber.

[Printed, 4d. No Drawings.]

A.D. 1866, November 30.—N° 3154.

TRUEFITT, HENRY PAUL.—(*Provisional protection only.*)—
“Improvements in the manufacture of hair, nail, tooth, and
“flesh brushes.”

“The object of this invention is to apply astringent, emollient,
“tonic, stimulating, and other solutions to brushes during the
“operation of cleansing the hair, the skin, the nails, or the
“teeth,” for the purpose of subjecting them “to the influences
“of the principles contained in such solutions, and thus acting
“tonically or otherwise upon the vascular and other tissue, and
“more especially obviating the sponginess of the gums.” For
these purposes “a stock or back of wood or woods” is made,
“whose tonic, astringent, or other principles are capable of solu-
“tion, whether in water or other fluids, such as the woods of
“(trunk or roots) quassia, gentian, ginger, chiretta, and the
“woods of certain nuts, such as the nut of the strychnos and
“other plants. The bristles may be of the ordinary material,
“or combined with filaments of one or more of these woods, and
“these are to be attached to the stock or back in any ordinary
“manner, or the stock or back or the bristles may be of a
“absorbent wood or other material prepared for the purpose
“of this invention, by being steeped in concentrated solution
“or decoctions or infusions of any of the above or such like
“woods, or imbued with their essential principles.”

[Printed, 4d. No Drawings.]

A.D. 1866, December 13.—N° 3282.

LAKE, WILLIAM ROBERT.—(*A communication from Andrew*
Irwin.)—“An improved scrubbing machine.”

“The said machine is composed mainly of a small tank or
“vessel constructed to contain the desired quantity of water or
“other liquid, and supported upon suitable wheels. The said
“tank is provided with a discharge spout and faucet or plug
“whereby the flow of the liquid from the tank can be regulated.
“One or both of the said wheels is provided with an interna-
“ly toothed wheel, which gears into a pinion mounted on the end
“of a crank shaft, from the crank or cranks of which suitable

"connecting rods extend to a brush or other scrubbing implement. When the tank is drawn or pushed along on its wheels, a quick reciprocating motion is imparted to the said brush, and the operation of scrubbing is effected with comparatively little exertion. Eccentrics or other drivers may be employed instead of cranks, to impart the required reciprocating motion to the scrubbing brush or other implement."

[Printed, 8d. Drawing.]

A.D. 1866, December 29.—N^o 3417. (* *)

SMITH, WILLIAM.—"An improved street sweeper."

In this machine a long cylindrical brush is mounted in bearings in the lower ends of arms or levers, the upper ends of which are supported by the axle of the vehicle, this arrangement enabling the brush to rest upon the surface to be cleaned, and still to accommodate itself to any irregularities therein. The arms which support the brush are so contrived that the axis of the latter forms a diagonal line with the axle of the machine, the wheels of the latter being loose upon such axle, but capable of acting thereon through the medium of ratchet wheels and catches, and so causing the axle to revolve when the machine is drawn forward. A bevil wheel on the axle then gives motion to a corresponding wheel placed on a diagonal shaft, at the end of which is a chain wheel, from whence a chain proceeds to a similar wheel on the axis of the brush, rotation being thus given to the latter, and its diagonal position causes it to pass the material to be removed from the surface of the street to one side of the latter. A weighted lever, mounted upon a bar extending across the machine, is brought to bear, when requisite, upon the supports of the brush, thus causing it to press with greater force upon the surface being cleaned, and such pressure is varied by moving the weight in the lever; this lever also serves to raise the brush entirely from the ground when necessary, in which position it may be sustained by a catch on the lever being inserted into a notch in a curved piece formed to receive it. The axle of the brush is jointed in the middle, so as to enable it to accommodate itself to curvatures in the street that is being cleansed.

[Printed, 6d. Drawing.]

APPENDIX.

A.D. 1844, February 24.—N° 10,068.

RETTIE, ROBERT.—Cooking apparatus.

Among the different utensils mentioned in the specification is one denominated a “metallic scrubber.” It is to be used for cleaning cooking utensils and other articles. It is composed of wire, mixed with hemp, bristles, or any suitable fibre. It may be made by binding together a bundle of wires, etc., or by setting the wires, etc. in a brush-back of the usual shape.

[Printed, 10d. Drawing.]

A.D. 1844, November 2.—N° 10,374.

SMITH, CHARLES.—“Cooking, culinary, and domestic articles.”

Amongst the very numerous and varied articles mentioned, several are connected with this series. They are described in three parts of the specification. In the first part, a handle for a sweep’s brush is described. It is composed of numerous rods or canes placed parallel, squeezed together in a vice with circular jaws, and bound with wire let in level with the surface. They are also united by glue or otherwise. The ends of each length are fitted into the sockets of metal screws, by forming grooves on the rod and screw socket, which are placed opposite each other. Lead is run in to the hollow thus formed.

In the fifteenth part of the invention a “ball shaped mop” for cleaning windows is described. Strips of chamois leather are sewn on to a ball of woven fabric, and this is nailed on the handle. Other strips are then doubled over metal rings, and these rings strung on the handle. A nail is driven into the handle above them to keep them tight.

In the sixteenth part, several mops and brushes are described. A mop and broom is formed by inserting bristles on one side of a triangular stock, and letting in to another side a block of wood on which thrums have been nailed to form a mop; or the thrums may be sewn on a woven fabric and this nailed on. The handle *is fixed* in the third side. Or the stock may be V-shaped instead

of solid, and have an arc of metal into which the handle fits. In the arc is a slot, and a ferrule on the handle end passes through the slot and into the angle formed by the two pieces of the stock. A pin on the ferrule secures it in different positions, by taking into holes in the arc. Or the brush stock may be formed with a hole into which the handle of an ordinary mop-head may be nailed. A mop may be made by sewing thrums on fabric, and nailing the fabric on a stock of suitable shape. For trundling the mop, a circular plate with a projecting pin on its centre is tied on the body of the operator, this fits into a ferrule on the end of the handle. Near the other end of the handle is a flanged ferrule; a bracket is fixed in a convenient place, in which is a slot; the ferrule is placed in this slot, and the flanges prevent its slipping, the mop is then twirled round by means of two strings attached midway on the handle. For use indoors a hollow vessel is provided with a sliding door which has a slot for the handle. This vessel is mounted on a stand over a bucket. A tap allows the water to be discharged into the bucket. Carriage and other brushes may be made with bristles on one side, and a mop as above described on the other. A scrubbing brush may be made with a recess in the back to hold water. A perforated metal or wooden cover may be applied to this recess. A "chalk line" frame may be pivoted on the handle of a brush. A white-washing brush may be pivoted in a forked handle, and be capable of being fixed in any position by a thumb-screw. A paint-brush may be fitted into a metal socket similarly pivoted. A shoe-scraper may have fitted over it a semi-circular brush, fitting the upper part of the foot. This is attached to a long handle which passes freely through a hole in the frame over the scraper.

[Printed, 4s. 6d. Drawings.]

A.D. 1852, October 9.—N^o 322.

GENT, GEORGE, and SMITH, SAMUEL.—"Fruit cleaning and dressing machine."

The fruit passes from a hopper on to a vibrating tray or shoot, where it is shaken so as to separate it. Thence it passes to another hopper, and through an opening regulated by a slide in its side, to a cylinder of wire gauze, within which revolves a shaft carrying arms that have brushes mounted on them. These brushes are placed parallel to the shaft, and extend from end to end of the cylinder. The end of the shaft passes through the

last-named hopper, and has on it pegs, or a spiral brush, to facilitate the delivery of the fruit. The cylinder may revolve or be fixed. It may be moveable, so that cylinders of different meshes may be used. The vibrating shoot may be dispensed with, and the fruit broken up previously. A serrated roller working against a brush, or "two brushes working in opposite directions" may be placed in the lower hopper to aid the delivery of the fruit. A sieve may be attached to the driving or brush shaft.

[Printed, 8d. Drawing.]

A.D. 1860, December 13.—N° 3057.

CASSON, JOHN.—"Machine for dressing dried fruits."

For clearing raisins, a revolving cylinder of wire network is mounted on a fixed shaft. On the shaft and the interior are fixed loops of wire which break up and separate the fruit. The meshes of the wirework are long and narrow, and extend lengthwise around the cylinder. Below the cylinder is fixed a long and narrow brush, the bristles of which pass through the interstices of the cylinder, and clean the fruit within it. For cleaning currants the fixed shaft is removed and replaced by one carrying arms on which brushes are mounted. This shaft has motion given to it in the same direction as the cylinder, but more rapid than it. Suitable means for supplying the cylinder with fruit, and for receiving the refuse, are provided.

[Printed, 10d. Drawing.]

A.D. 1864, April 30.—N° 1091.

PARKER, JOSEPH, PARKER, THOMAS JAMES, and PARKER, JOHN.—(*Provisional protection only*).—"Apparatus for cleaning dried fruits."

"The currants or other dried fruit to be cleaned are placed in
 " a conical hopper fixed on the top of a flat disc, the under surface of such disc forming a circular flat brush. Immediately
 " beneath this disc, and of the same diameter, is placed a stationary grid, supplied with a receiver for the dirt or refuse
 " thrown from the fruit, so that when the machine is in action,
 " the fruit being delivered on to the centre of the grid through
 " a hole or passage formed in the disc, is submitted to the rapidly
 " revolving action of the brush on such disc, causing the currants
 " or other dried fruit to be thrown centrifugally from the centre
 " to the edge of the grid, when they fall into a drawer or recep-

“tacle thoroughly cleansed from all impurities, and ready for use.”

[Printed, 4d. No Drawings.]

A.D. 1864, August 24.—N° 2091.

BARNICOAT, WILLIAM HENRY, and BARR, DAVID.—(*Provisional protection only.*)—“Portable fruit-dressing machine.”

“A vertical shaft is made to revolve by means of a handle placed at the top thereof, on which is fixed one or more iron arms. On each of the arms is fixed a circular or curved brush made of bristles or other material of which brushes are usually made. The brush or brushes so fixed are made to revolve in an ordinary sieve until the fruit is sufficiently dressed or cleansed. A horizontal piece of wood or metal is fixed across the top of the sieve, and the shaft passing through a hole in the centre thereof is made to work in a wooden block or suitable piece of metal fixed at the bottom in the centre of the sieve, which arrangement will allow the brush to rise or fall according to the quantity of fruit over which it passes. A hopper or receptacle for the fruit may be fixed on the top of cross bar, pegs being attached to the spindle and the said hopper; the fruit, when in lumps, can be easily broken down and prepared for the brushes, it then falls through an aperture at the bottom of the hopper into the sieve.”

[Printed, 4d. No Drawings.]

A.D. 1865, February 22.—N° 502.

BARR, DAVID.—“Machinery for dressing fruit.”

Two machines for this purpose are described. In one a shaft is mounted vertically on a cross-bar fixed over the top of a sieve. This shaft is rotated by a handle. It carries several arms, or a circular plate to which are affixed sickle-shaped brushes which bear against the sieve. A hopper may be fixed to the cross-bar.

In the second machine, an inclined sieve is supported at its lower end by a spring, and at its upper end (as shown in the drawing) by a lever which has a “jogging” motion given to it by a pinion into which gear the tooth of a wheel turned by a crank. Brushes are held by springs against the sieve, and the fruit is discharged from a hopper so that it falls between the sieve and the brushes, which have their upper rows of bristles cut away to

BRUSHING AND SWEEPING.

the fruit room to pass. No description of the actuating mechanism is given.
[Printed, 10d. Drawings.]

A.D. 1865, November 20.—No 2978.
LICKETT, ARTHUR.—(*Provisional protection only.*)—"Apparatus for cleaning and dressing currants and other fruits."
The machine is horizontal instead of vertical. The brushes are arranged on arms diverging from the central shaft. These arms are fixed near the end of the shaft, four or more at each end, "each arm at one end of the shaft being placed immediately opposite another arm at the other end." Between each pair of arms is a circular brush on a spindle carried by the arms. Upon one end of the spindle is a pinion gearing into a wheel "concentric with the shaft." By this means independent movement is given to each brush. A wire gauze cylinder surrounds the apparatus. In it are doors for introducing the fruit. It may revolve or be fixed.
[Printed, 4d. No Drawings.]

A.D. 1865, December 6.—No 3133.
WHEEL, EDWIN.—"Machine for cleaning fruit and other purposes."
A cylinder, preferably made of wire coiled round and laced to cross-bars, but also of any suitable wire-work, is mounted on a horizontal fixed axle. The cylinder is rotated by a windlass. To the fixed axis is attached a partition, on which brushes may be fixed. This partition extends from the central shaft to the top of the cylinder. In the machine for dressing currants there is a second similar partition, shown in the drawing as sloping downwards from the shaft at an angle of about 135° to the first partition. The cylinder may also carry brushes or other cleaning apparatus. The cylinder may be double, and the two parts may slide on each other in order to regulate the size of the mesh. Other methods of cleaning are referred to, but they do not concern the present series.
[Printed, 6d. Drawing.]

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I.

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Alton (<i>Mechanics' Institution</i>).	Barnstaple (<i>Literary and Scientific Institution</i>).
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Bacup (<i>Mechanics' Institution</i>).	Battle (<i>Young Men's Christian Association</i>).
Ballymoney (<i>Town Hall</i>).	Belfast (<i>Athenæum</i>).
	Berkhamstead, Great (<i>Mechanics' Institute</i>).

Berkhamstead, Great (Working Men's College).
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 — (Central Lending Library).
 — (Deritend Working Men's Association).
 — (Graham Street Institution).
 — (Gun Makers' and Inventors' Club).
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 — (School of Art).
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 Bradford, Yorkshire (Church Institute).
 — (Library and Literary Society).
 — (Mechanics' Institute).
 Braintree (Braintree and Bocking Literary and Mechanics' Institution).
 Brompton, near Chesterfield (Local Museum and Literary Institute).
 Breage, Cornwall (Institution).
 Bristol (Athenæum).
 — (Institution).
 — (Law Library Society).
 — (Library).
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 — (Literary Institution).
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 Calne (Literary Institution).
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 Cokerham (Mechanics' Institution).
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 — (Young Men's Christian Association).

Compstall (Athenæum).
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 — (School of Art).
 Crediton (Working Men's Club).
 Crewe (Mechanics' Institution).
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 Denton (Denton and Haughton Mechanics' Institution).
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 Devouport (Mechanics' Institute).
 Dewsbury (Mechanics' Institution).
 Diss (Reading Room and Library).
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 — (Working Men's Institute).
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 Dukinfield (Village Library and Reading Room).
 Dumbarton (Philosophical and Literary Society).
 Dumfries (Mechanics' Institution).
 Durham (Mechanics' Institute).
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 Ealing (Mechanics' Institute).
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 — (Working Men's Club).
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 Garforth, near Leeds (Working Men's Club).
 Glasgow (Athenæum).
 — (Central Working Men's Club and Institute).
 — (Institution of Engineers in Scotland).
 — (Mechanics' Institution, Bath Street).
 — (Philosophical Society).
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 Godmanchester (Working Men's Reading Room).
 Gosport (Gosport and Alerstoke Literary and Scientific Institution).

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 Greenwich (*Working Men's Institute*).
 Guernsey (*Mechanics' Institution and Literary Society*).
 ——— (*Working Men's Association*).
 Guildford (*Mechanics' Institute*).
 Hadleigh (*Young Men's Institute*).
 Halesworth (*Mechanics' Institute*).
 Halifax (*Literary and Philosophical Society*).
 ——— (*Mechanics' Institute*).
 ——— (*Working Men's College*).
 Halstead (*Literary and Mechanics' Institute*).
 Haslingdon (*Institute*).
 Hastings (*Literary and Scientific Institution*).
 ——— (*Mechanics' Institution*).
 Hawarden (*Literary Institution*).
 Hebbden Bridge, near Todmorden (*Mechanics' Institution*).
 Helston (*Reading Room and Library*).
 Hemel Hempstead (*Mechanics' Institute*).
 Hereford (*Natural History, Philosophical, Antiquarian, and Literary Society*).
 Hertford (*Literary and Scientific Institution*).
 Heywood (*Mechanics' Institute*).
 Holbeck (*Mechanics' Institution*).
 Hollingwood (*Working Men's Club*).
 Holt, Norfolk (*Literary Society*).
 Holywell Green (*Mechanics' Institution*).
 Huddersfield (*Mechanics' Institution*).
 Hull (*Church Institute*).
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 ——— (*Young People's Institute*).
 Huntingdon (*Literary and Scientific Institution*).
 Inverness (*Working Men's Club*).
 Kendal (*Christian and Literary Institution*).
 ——— (*Working Men's Institute*).
 Kidderminster (*Mechanics' Institute*).
 Lancaster (*Mechanics' Institute and School of Science*).
 Lee, Kent (*Working Men's Institution*).
 Leeds (*Church Institute*).
 ——— (*Library*).
 ——— (*Mechanics' Institution and Literary Society*).
 ——— (*Philosophical and Literary Society*).
 ——— (*Working Men's Institute*).
 ——— (*Young Men's Christian Association*).
 Leek, Staffordshire (*Literary and Mechanics' Institution*).
 Leicester (*Law Society*).
 ——— (*Young Men's Christian Association*).

Leighton Buzzard (*Working Men's Mutual Improvement Society*).
 Leith (*Mechanics' Subscription Library*).
 Lewes (*Fitzroy Memorial Library*).
 ——— (*Mechanics' Institute*).
 ——— (*School of Science and Art*).
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 Liverpool (*Institute*).
 ——— (*Mechanics' Institute*).
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 ——— (*Polytechnic Society*).
 Llanelly (*Chamber of Commerce and Reading Room*).
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 ——— (*Bow Common Working Men Club, Devon's Road, Bow Common*).
 ——— (*Christchurch Working Men Club, New Street, Lark Hall Lane Clapham*).
 ——— (*Clerkenwell Club, Low Roseman Street*).
 ——— (*Holloway Working Men Club and Institute, Holloway Road*).
 ——— (*Literary and Scientific Society, Wellington Street, Islington*).
 ——— (*Literary and Scientific Institution, Walsworth*).
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 ——— (*Working Men's Club and Institute, Battersea*).
 ——— (*Working Men's Club and Institute Union, Strand*).
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 Lye (*Institution*).
 Lymington (*Literary Institute*).
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 Marlborough (*Reading and Mutual Improvement Society*).
 Maldon, Essex (*Literary and Mechanics' Institute*).
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 ——— (*Athenæum*).
 ——— (*Campfield Free Land Library*).

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 Melkham (Mutual Improvement Society).
 Melton Mowbray (Literary Institute).
 Merthyr-Tydfil (South Wales Institute of Engineering).
 Middlesbrough (Iron and Steel Institute).
 — (Mechanics' Institution).
 Middlewich (Literary and Scientific Institution).
 Modbury (Mechanics' Institution).
 Monsey (Mechanics' Institute).
 Newark (Mechanics' Institute).
 Newbury (Literary and Scientific Institution).
 Newcastle-upon-Tyne (Mechanics' Institution).
 — (Working Men's Club).
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 Newport, Isle of Wight (Young Men's Society and Reading Room).
 Northampton (Mechanics' Institute).
 Nottingham (Free Library).
 — (Mechanics' Institution).
 — (Subscription Library).
 — (Bromley House).
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 Oldham (Analytic Literary Institution).
 — (Mechanics' Institution, Worselt).
 Ormskirk (Public Library).
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 Penryn (Working Men's Club and Reading Room).
 Perth (Mechanics' Library, High Street).
 Peterborough (Mechanics' Institution).
 Plymouth (Working Men's Institute).

Poole (Literary and Scientific Institution).
 — (Mechanics' Institute).
 Porlann (Athenaeum and Mechanics' Institution).
 Preston (Institution for the Diffusion of Knowledge).
 Rawtenstall (Mechanics' Institution).
 Reigate (Mechanics' Institution).
 Reithra (Literary and Natural Improvement Society).
 Richmond (Working Men's College).
 Rotherham (Rotherham and Mother's Literary and Mechanics' Institute).
 Roydon (Institution).
 Ryde, Isle of Wight (Literary and Scientific Institution).
 — (Philosophical and Scientific Society).
 Saffron Walden (Literary and Scientific Institution).
 St. Just (Institution).
 St. Leonard's (Mechanics' Institution).
 Salford (Working Men's Club).
 Saltaire (Literary Institute).
 Selby (Mechanics' Institute).
 Sevenoaks (Literary and Scientific Institution).
 Shaftesbury (Literary Institution).
 Sheffield (Branch Free Library).
 — (Brightside Branch Library).
 — (Literary and Philosophical Society, School of Arts).
 — (Mechanics' Institution).
 Sidmouth (Mechanics' Hall).
 Skipton, Yorkshire (Mechanics' Institute).
 Slough (Mechanics' Institute).
 Smethwick, Staffordshire (Library, Reading Room, and Literary Institute).
 Southampton (Hartley Institution).
 — (Polytechnic Institution).
 — (Workmen's Hall).
 Southport (Athenaeum).
 South Shields (Working Men's Institute and Club).
 Southwell (Literary Institution).
 Spalding (Mechanics' Institute).
 — (Christian Young Men's Association).
 Staines (Literary and Scientific Institution).
 — (Mechanics' Institute and Reading Room).
 Stalybridge, Cheshire (Mechanics' Institution).
 Stamford (Institution).
 Stourbridge (Associated Institute).
 — (Church of England Association).
 — (Iron Works Reading Room and Library).
 — (Mechanics' Institution).
 — (Working Men's Institute).
 Stratford (Working Men's Hall).
 Sudbury, Suffolk (Literary and Mechanics' Institute).
 Sunderland (Working Men's Club).

Swansea (*Royal Institution of South Wales*).
 ——— (*Working Man's Institute*).
 Tavistock (*Mechanics' Institute*).
 ——— (*Public Library*).
 Thornton, near Bradford (*Mechanics' Institute*).
 Thornton Heath, Croydon (*Workmen's Club*).
 Todmorden (*Mechanics' Institute*).
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 ——— (*Institution*).
 ——— (*Royal Institution of Cornwall*).
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 ——— (*Mechanics' Institute*).
 Tunbridge Wells (*Mechanics' Institution*).
 ——— (*Society of Literature and Science*).
 Turtun, near Bolton (*Chapel Town Institute*).
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 Ulverston (*Temperance Hall*).
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 Wakefield (*Mechanics' Institute*).
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 Watford (*Literary Institute*).

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 ——— (*Young Men's Society*).
 Wendover (*Literary Society*).
 Whaleybridge (*Mechanics' Institute*).
 Whitby (*Institute*).
 ——— (*Museum*).
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 ——— (*Working Men's Reading Room*).
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 Wilton (*Literary Institute*).
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 Yarmouth, Norfolk (*Public Library, South Quay*).

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